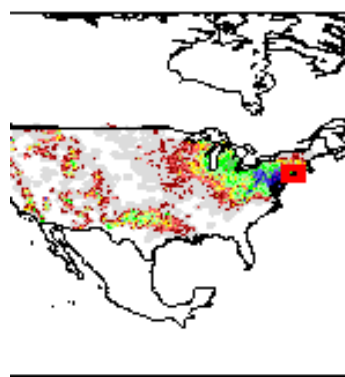
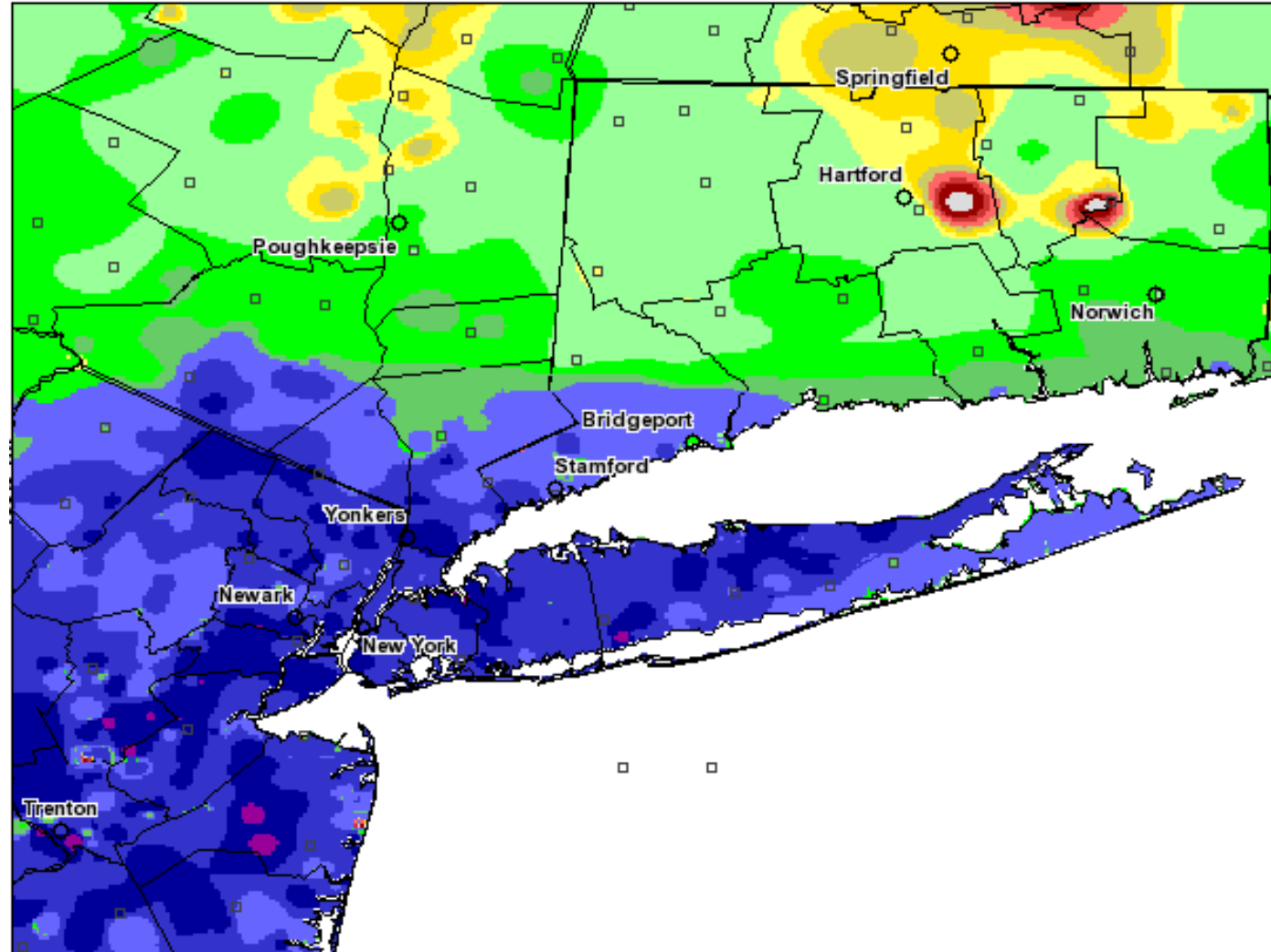
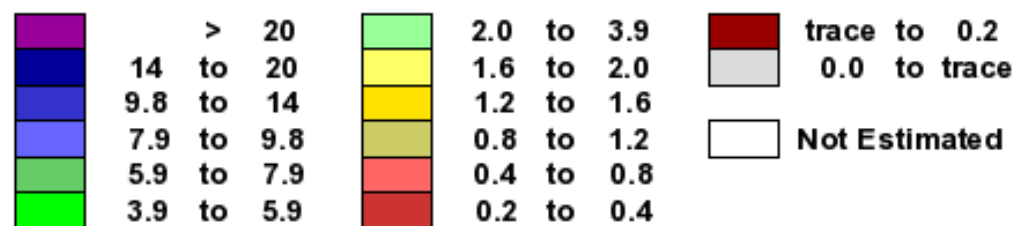


February 9-10th 2010



Inches of depth



Setup

- A strong mid-upper level low tracking eastward from the Ohio Valley to the Mid Atlantic Coast and a 170+ kt upper level jet rounding its base were responsible for rapid deepening of low pressure along the North Carolina coast Tues night. The low tracked slowly ne...during the day Wed...to just south of the 40/70 benchmark by evening at 976 mb.
- The first batch of heavy snow coming in the morning was in response to strong theta-e advection and isentropic lift of Gulf/Atlantic moisture...with a second round in the afternoon and evening in response to strong frontogenetic/deformation banding as the upper low approached and bombing low pressure tracked to the south.
- Between 10 -16 inches fell across NYC...NE New Jersey...and LI. 6 to 12 inches across the Lower Hudson Valley and extreme SW Conn. 4 to 8 inches across SE Conn.
- Temperatures during the event were generally in the lower 30's lending to a heavy wet snowfall.
- NE/N winds during the peak of the event Wednesday afternoon ranged from 20 to 30 mph with gusts 35 to 45 mph.
- Tidal departures of 3 ft were needed for minor coastal flooding during the times of high tide Wednesday evening. All areas fell just short as winds shifted from NE to the N in the evening...and pressure falls stabilized.

Preliminary Verification

Watches

OKX Performance

- POD = 100 %
- Avg. Lead Time = 48.8 hrs
- FAR = 17%
- CSI = .83
- Number of Watches: 29
- Number of Events: 24
- Watches with event: 29
- Watches w/o event: 5

INTERNAL Goals

- POD = 60%
- CSI = 0.60
- Avg. Lead Time = 30 Hours

Warnings

OKX Performance

- POD = 100%
- Avg. Lead Time = 37.0 hrs
- FAR = 17 %
- CSI = .83
- Number of Warnings: 29
- Number of Events: 24
- Warnings with event: 23
- Warnings w/o event: 5

National GPRA Goals

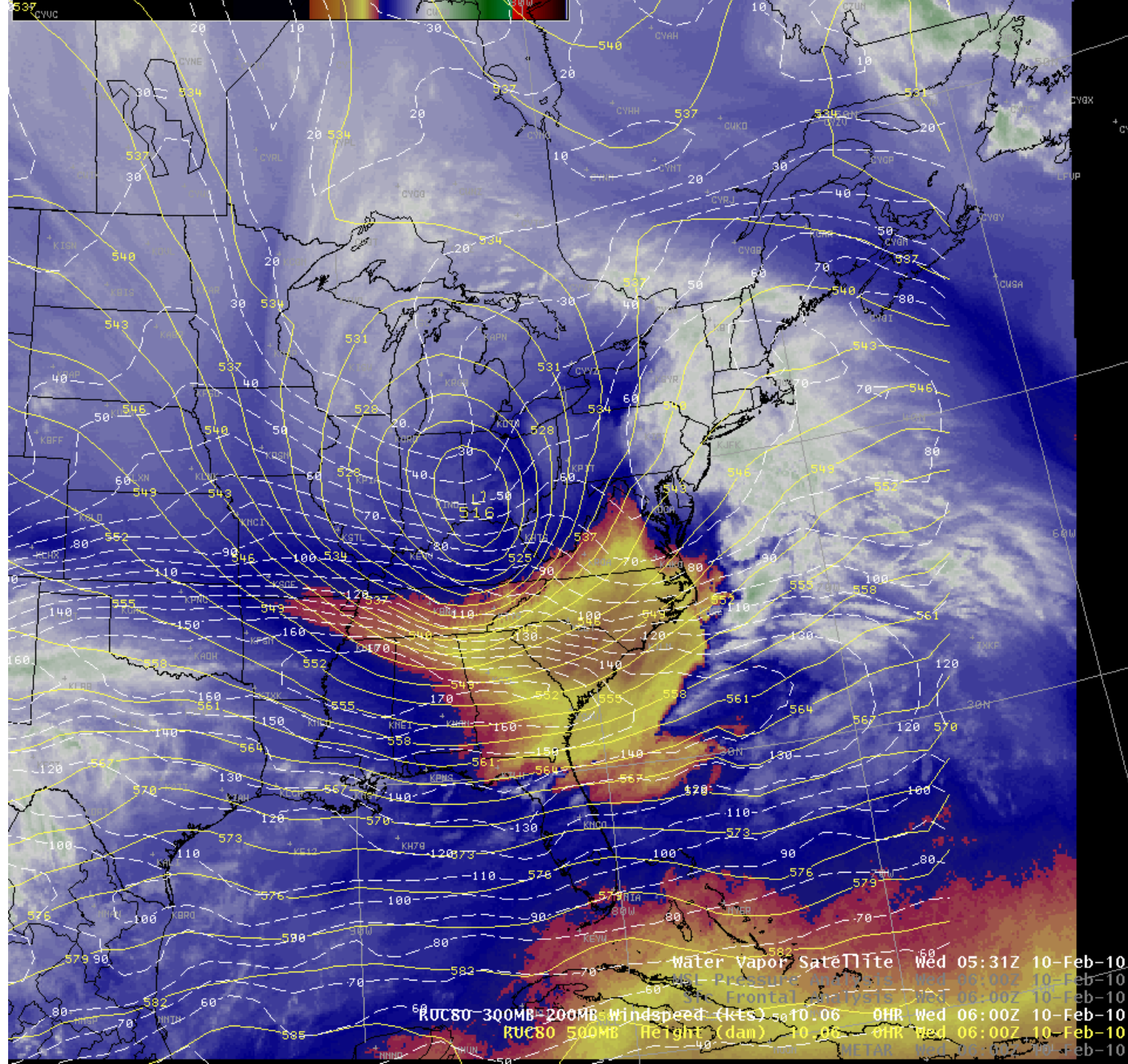
- POD = 90%
- Avg. Lead Time = 15 Hours
- FAR = 33% (ER GPRA)

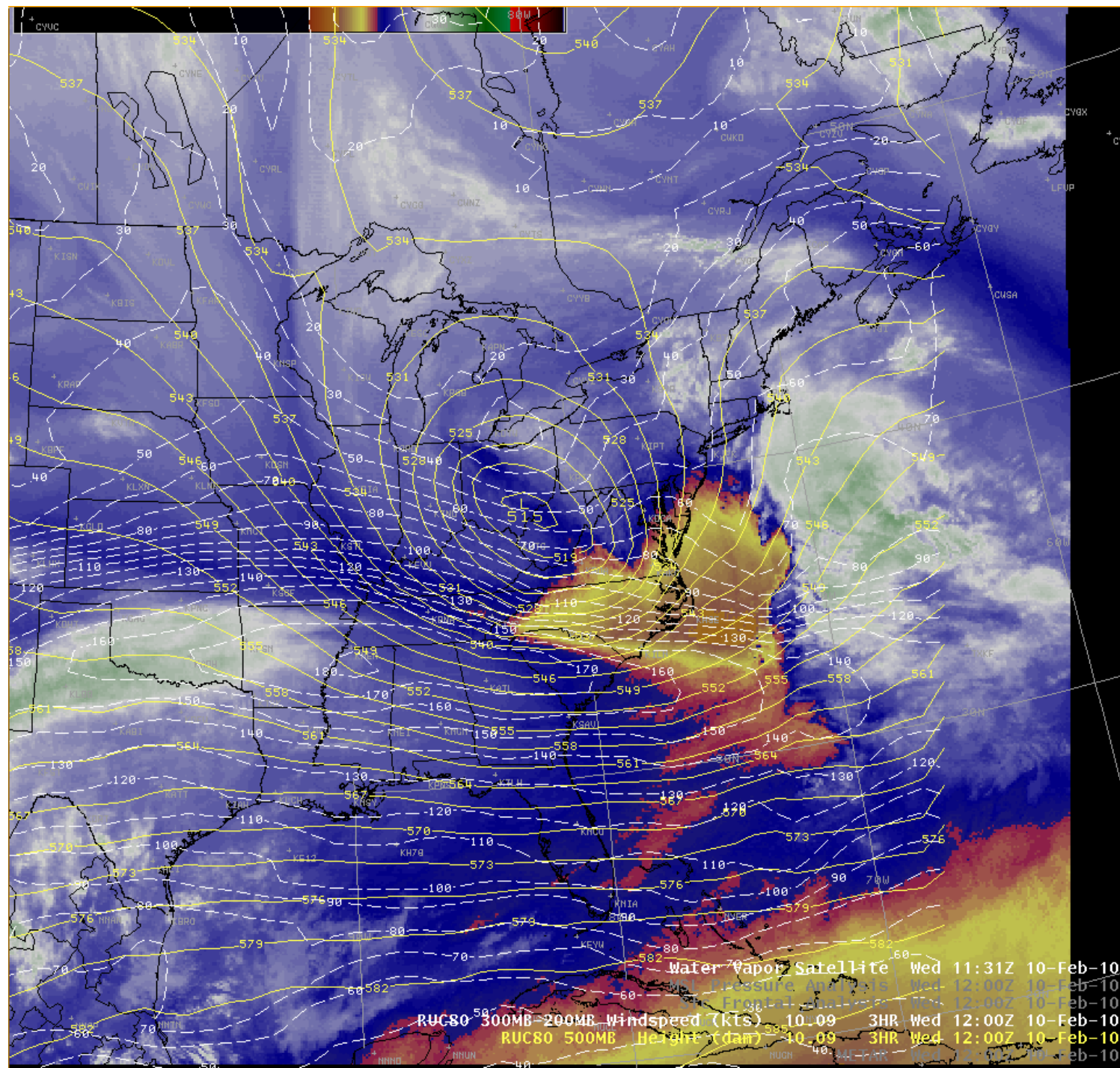
Blizzard warning did not verify.

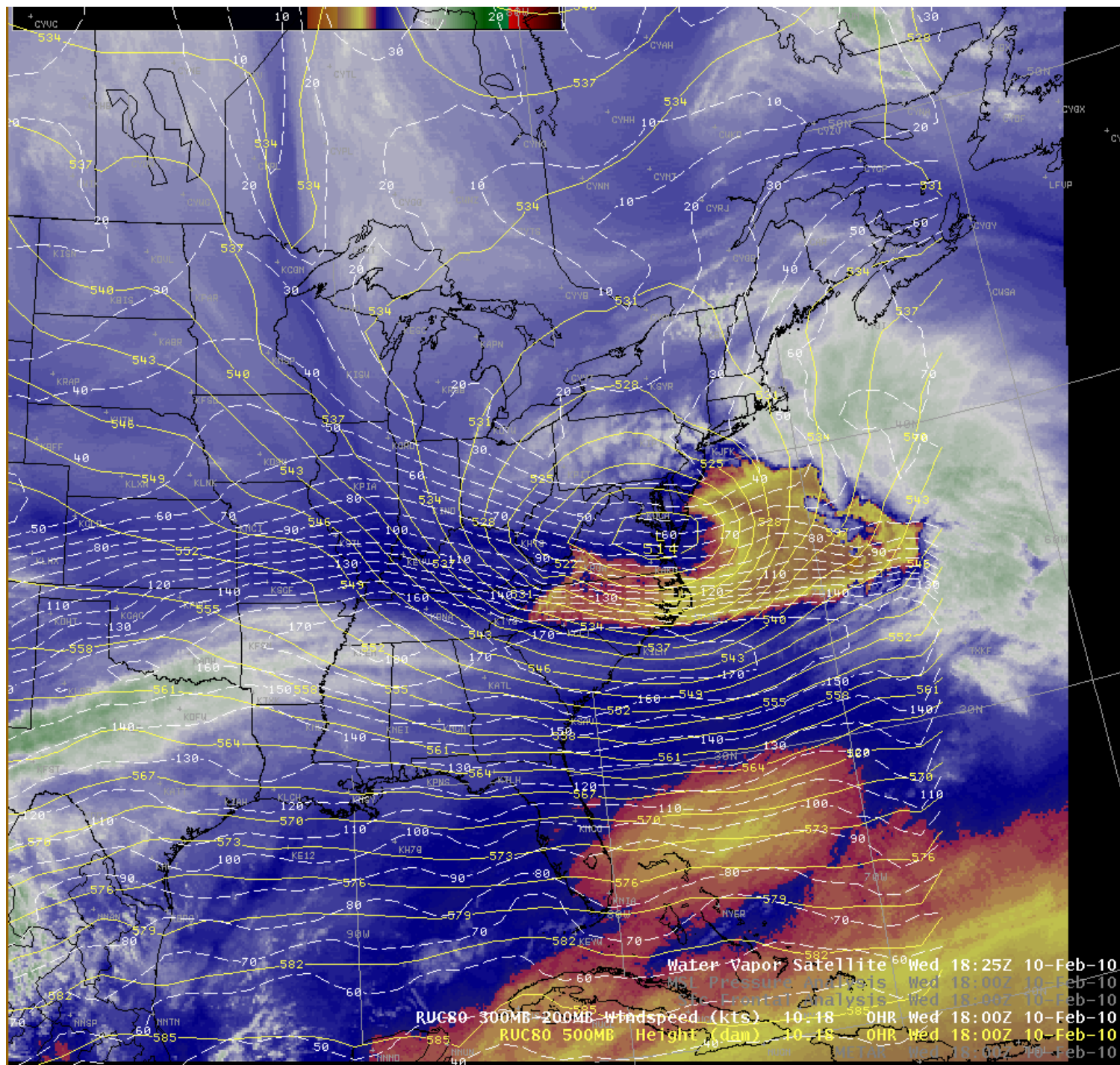
- Visibilities fell to $\frac{1}{4}$ mile for multiple hours in heavy snow at many stations and winds gusted over 35 miles per hour for many hours at many stations as well...but these events did not coincide for 3 hrs at any stations.

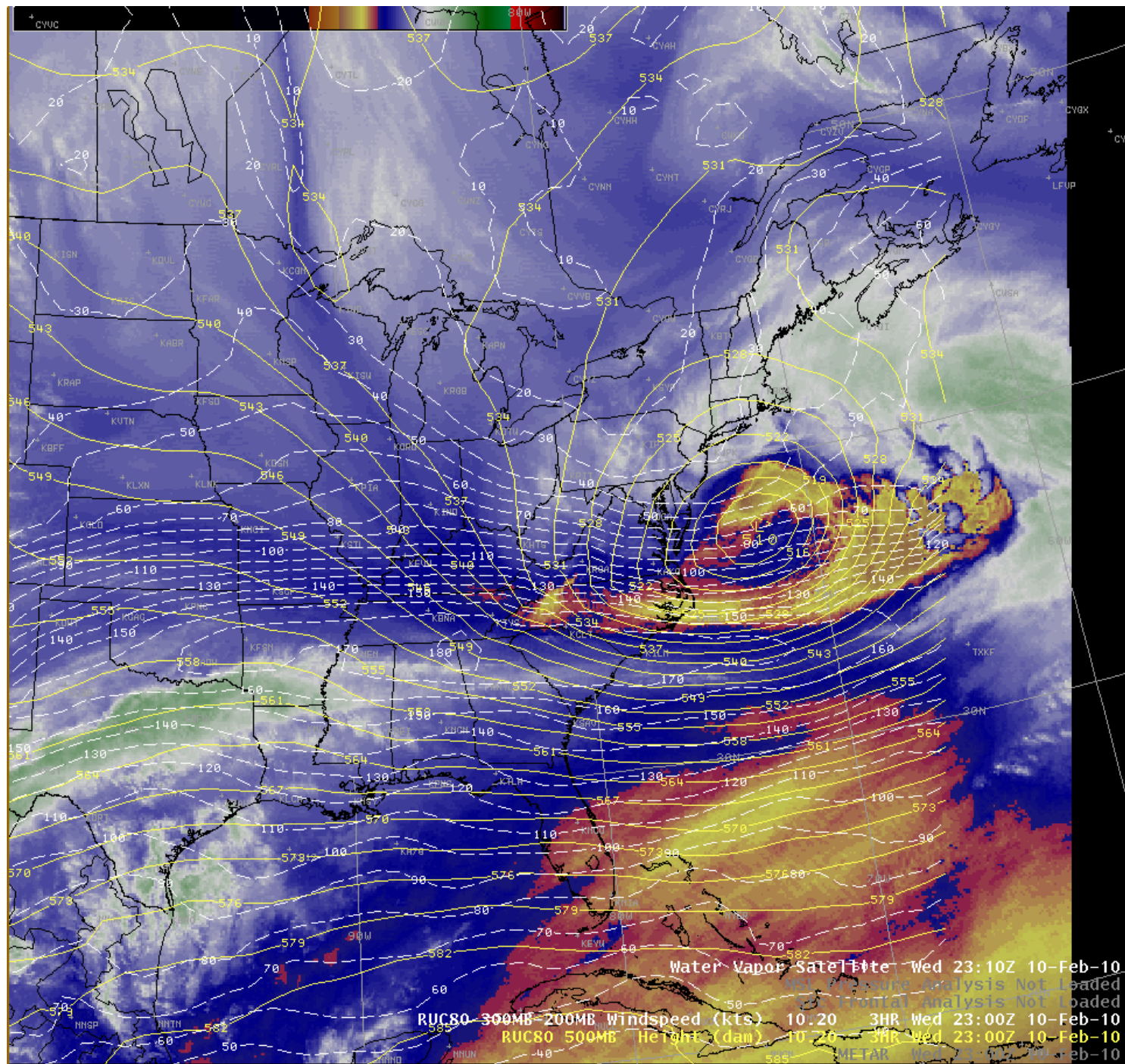
500 HPA

- A strong mid-upper level low tracking eastward from the Ohio Valley to the Mid Atlantic Coast and a 170+ kt upper level jet rounding its base were responsible for rapid deepening of low pressure along the North Carolina coast Tues night.









850-700 HPA Frontogenesis

- One area of frontogenetic forcing...a result of the strong theta-e advection across a tight baroclinic zone due a 40+ kt southeasterly low-level jet...lifts up into NYC and LI late Tues night into Wed morning.
- This area slides east late Wed morning as bombing low pressure tracks south of LI...while a second stronger area of frontogenetic/deformation forcing develops as the upper low approaches. This area of strong forcing translates from NW to SE...mimicking the southeasterly track of the upper low.
- This double barreled frontogenetic forcing was well advertised in the operational models leading up to the event. The weaker frontogenetic forcing in between explains the lower snow totals across SE Conn.



Start

Rock

Set Animation Speed

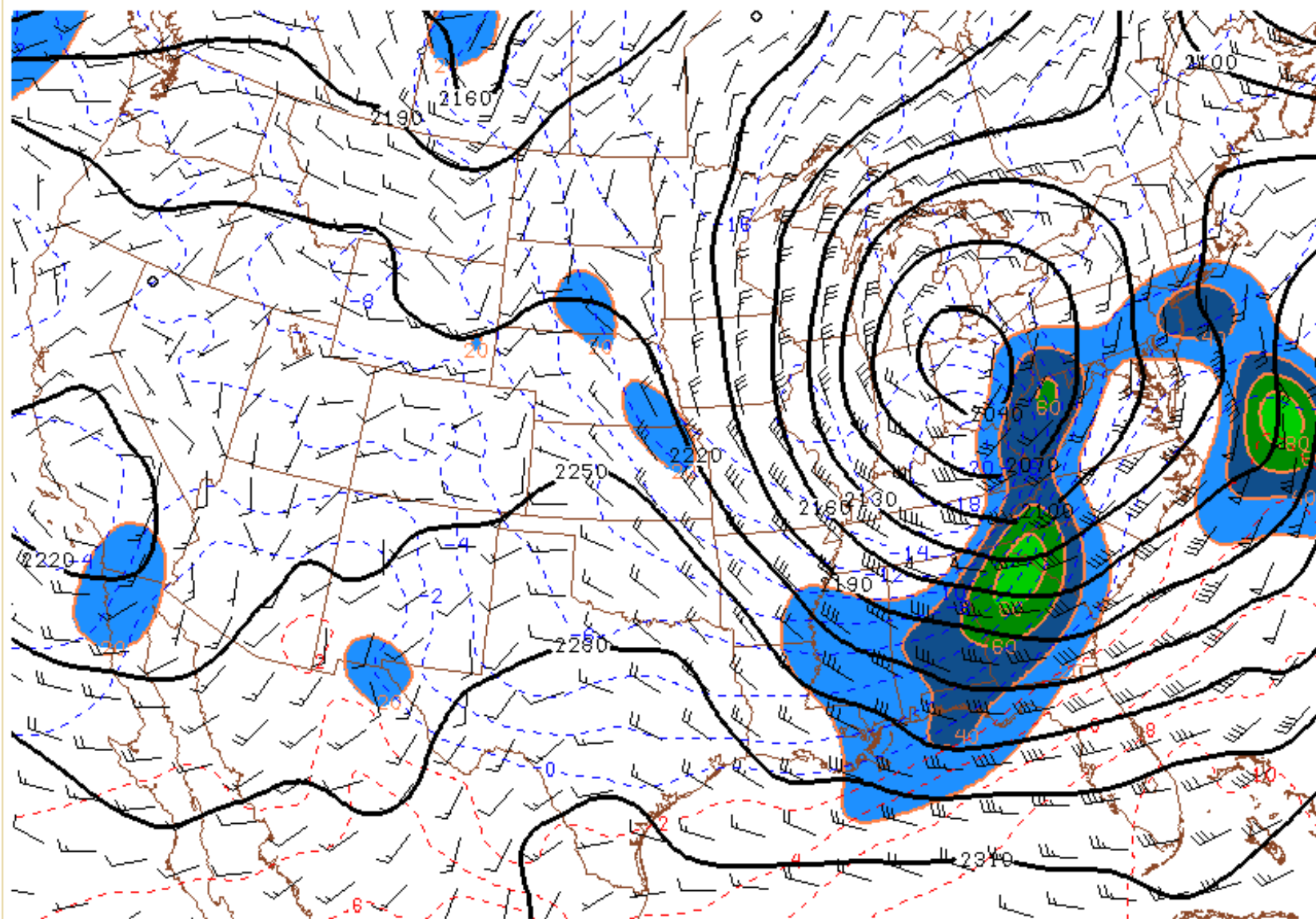


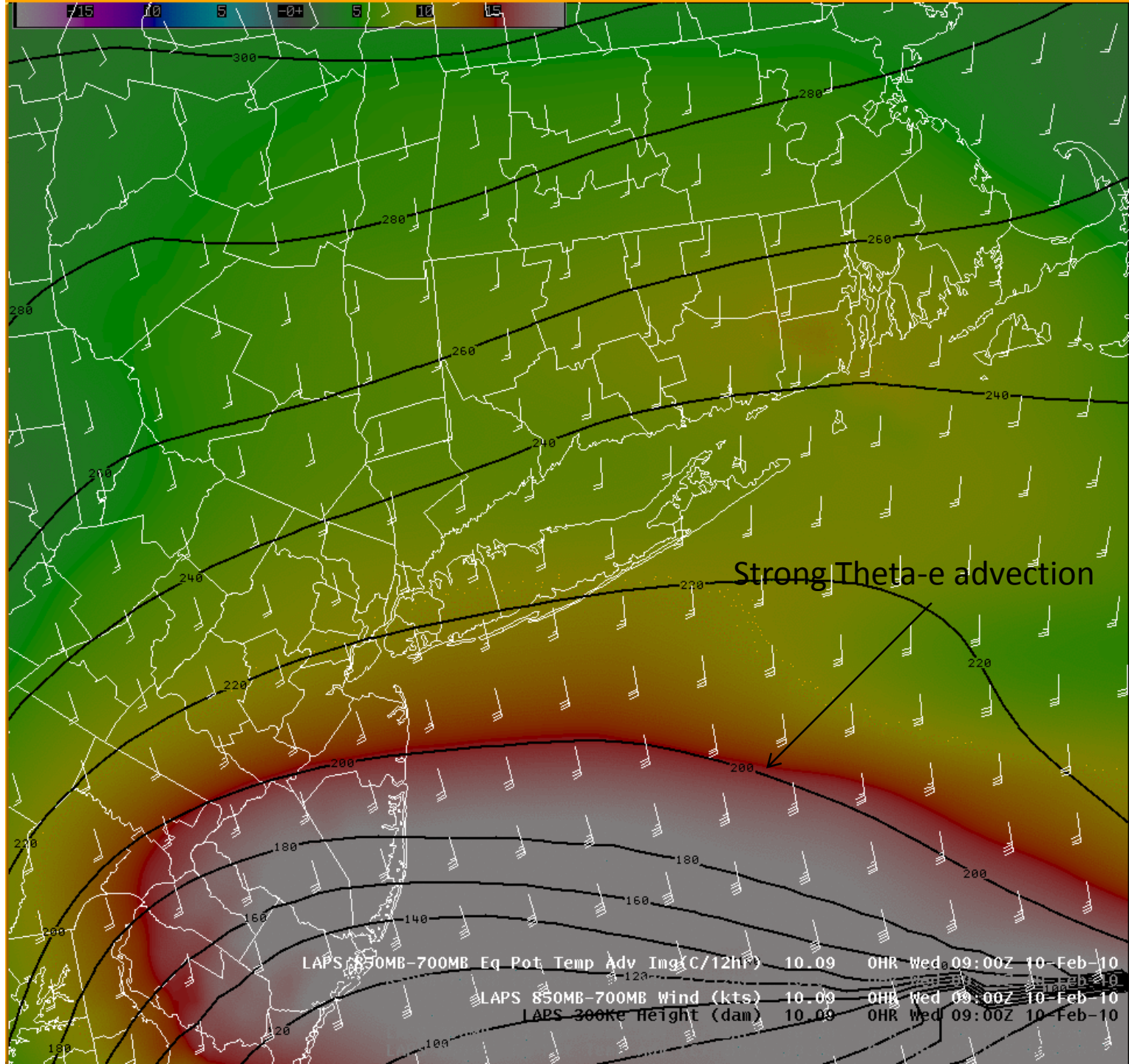
Zoom

Refresh



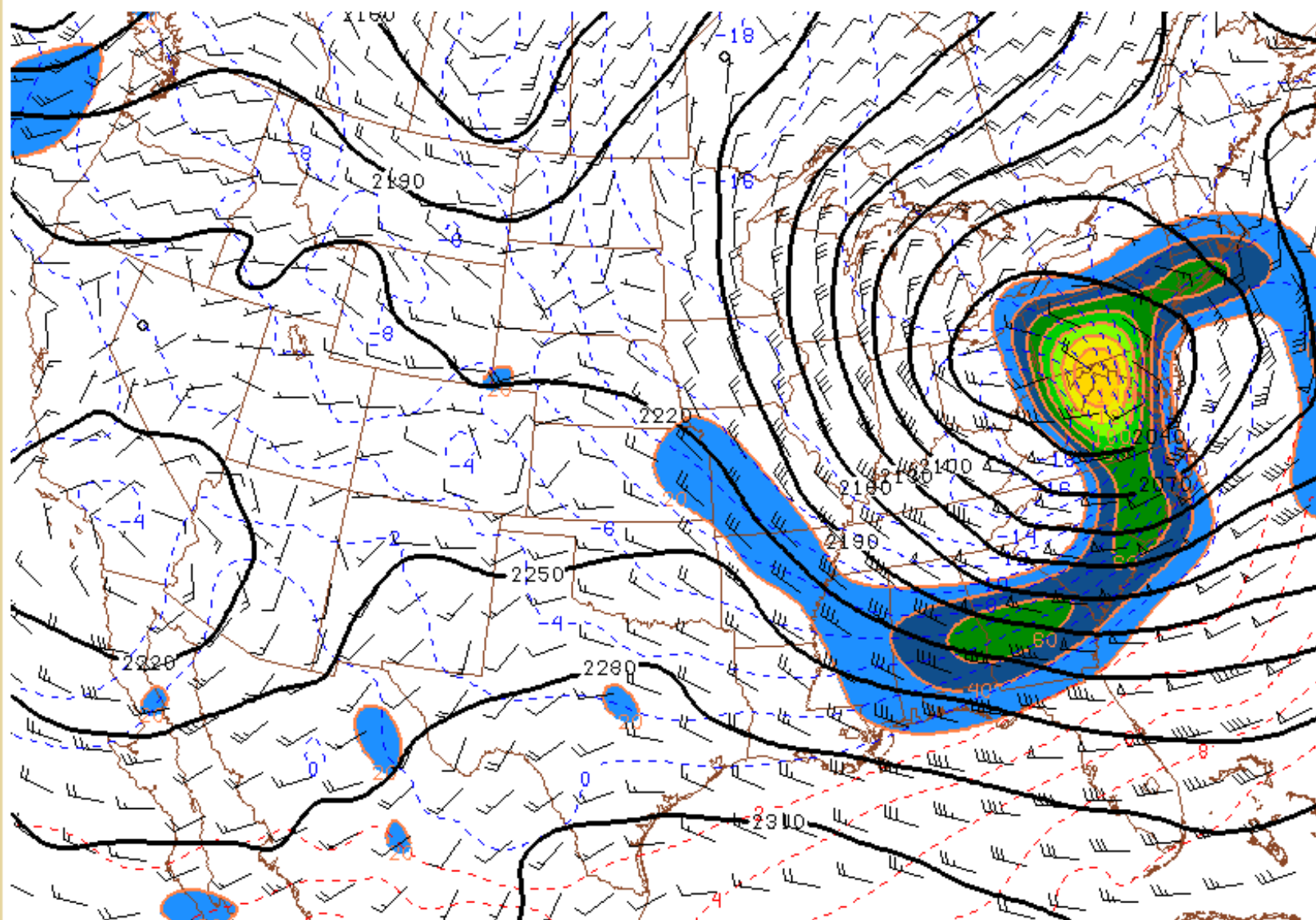
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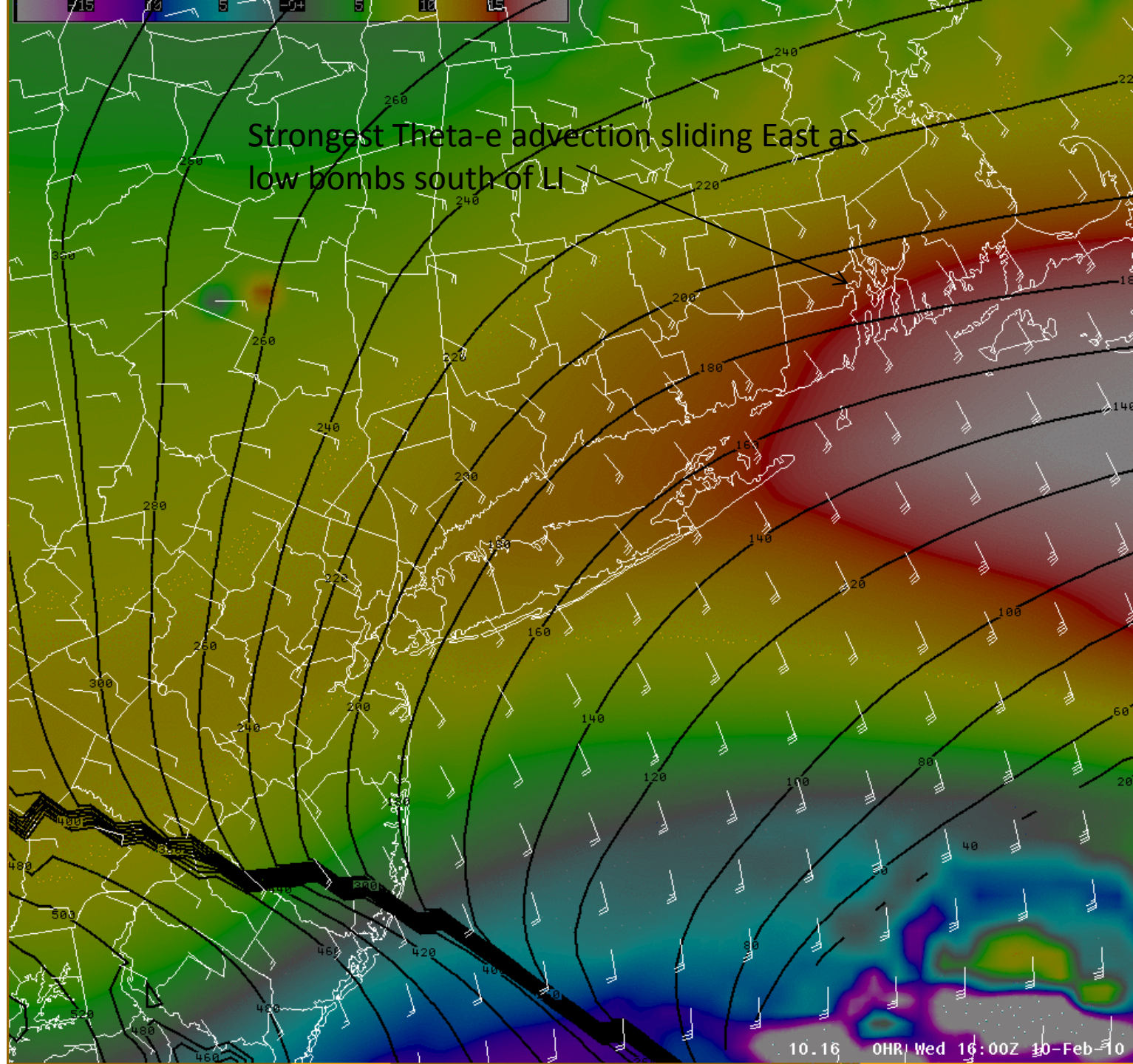


Left click - toggle on/off; Right click - show frame



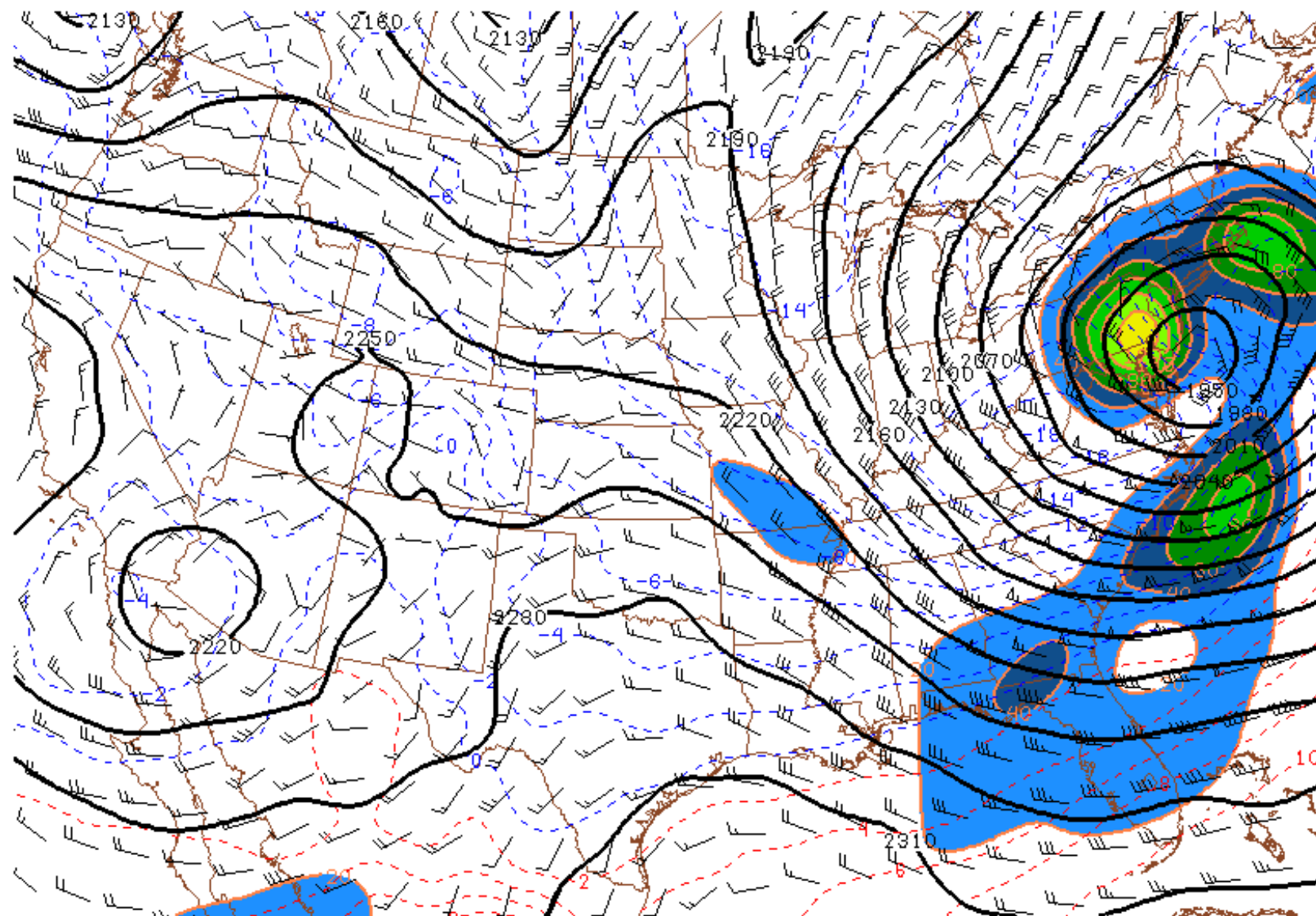
100210/1200V001 850-700 mb mean Petterssen frontogenesis (f111)
 100210/1200V001 850-700 mb mean height, temperature and wind

Strongest Theta-e advection sliding East as
low bombs south of LI





Left click - toggle on/off; Right click - show frame

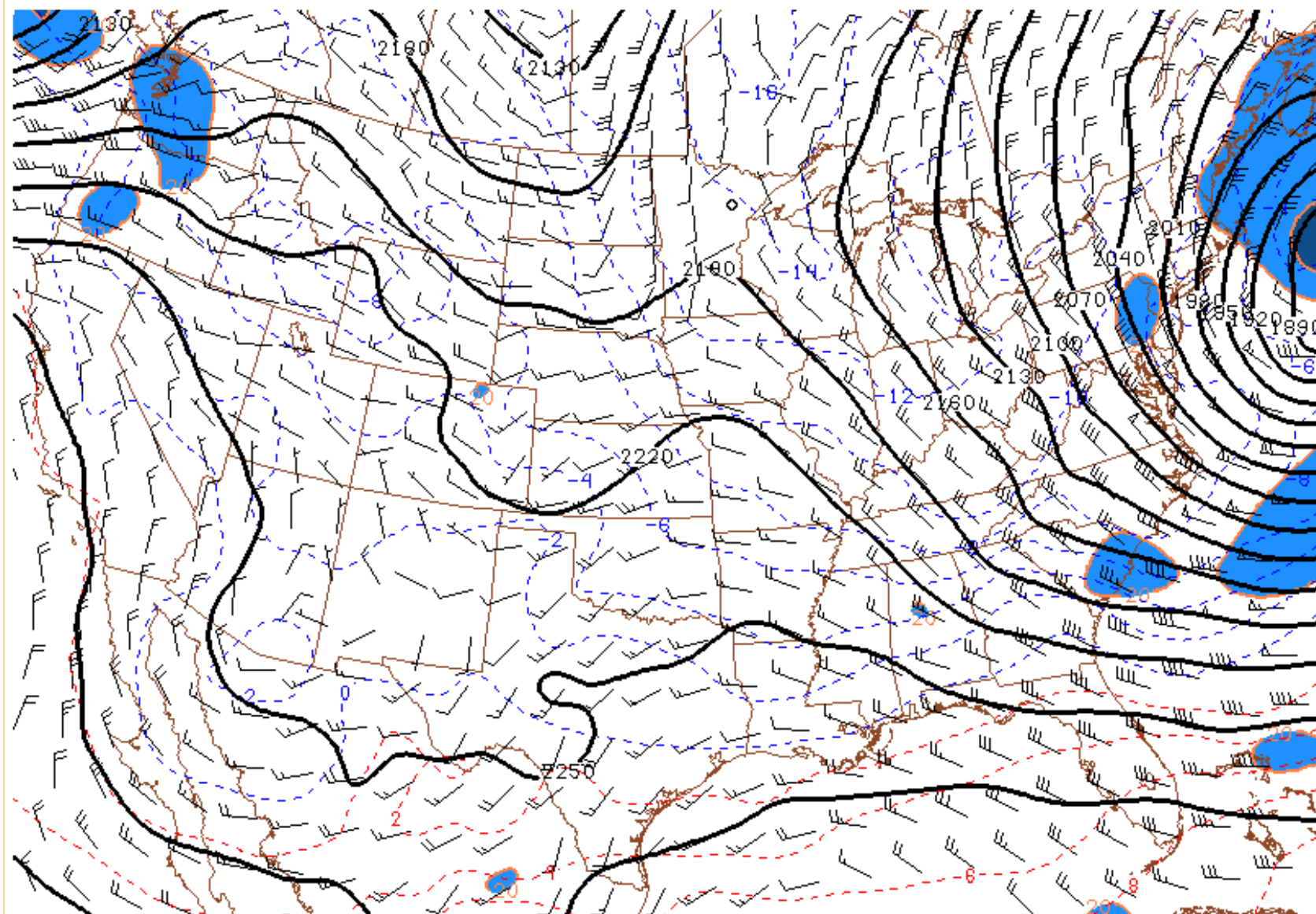


100210/1800V001 850-700 mb mean Petterssen frontogenesis (f111)
 100210/1800V001 850-700 mb mean height, temperature and wind

```
100211/0000V001 850-700 mb mean Petterssen frontogenesis (f11)
100211/0000V001 850-700 mb mean height, temperature and wind
```



Left click - toggle on/off; Right click - show frame



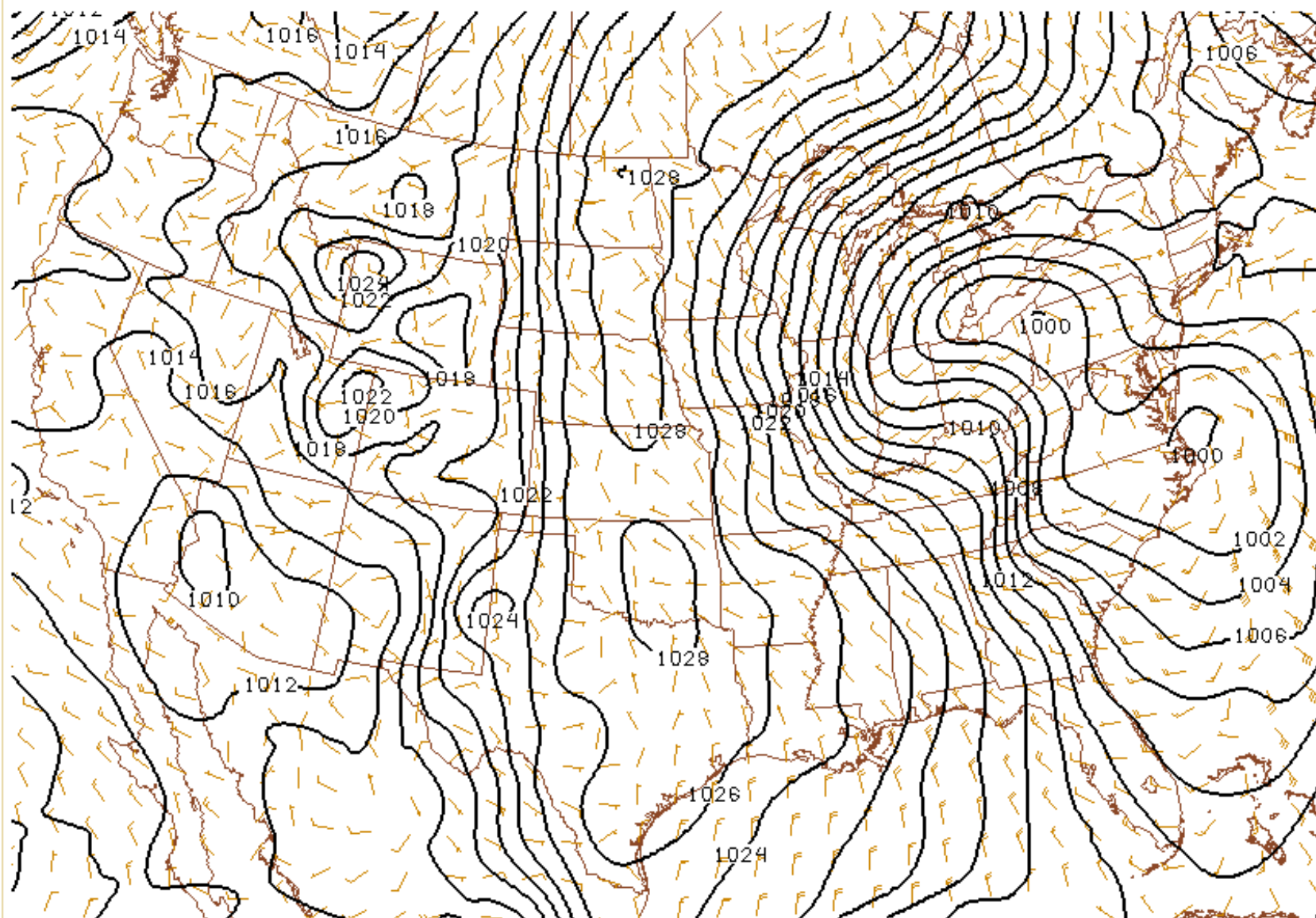
100211/0600V001 850-700 mb mean Petterssen frontogenesis (F111)
 100211/0600V001 850-700 mb mean height, temperature and wind

Surface

- The synoptic setup was ideal for warning level snowfall across the cwa...with polar high pressure anchored across the Central US into the Canadian Plains and nosing into New England.
- This setup slowly eroded...but by that time dynamic cooling and strong ascent due the approaching upper low and tightening baroclinic zone on the backside of bombing low pressure sustained bands of heavy wet snow across the region.



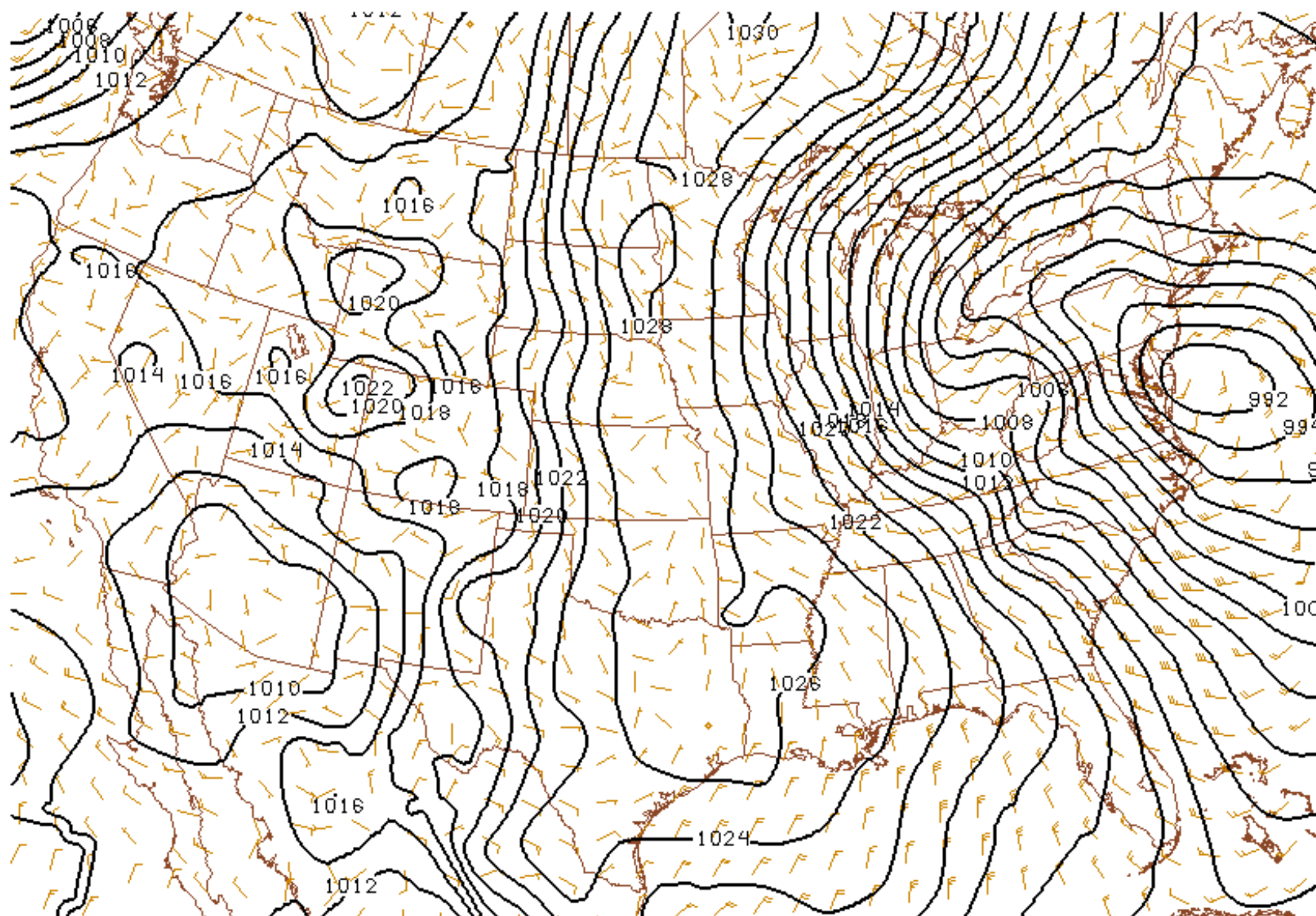
Left click - toggle on/off; Right click - show frame



100210/0600 MSL Pressure and surface wind



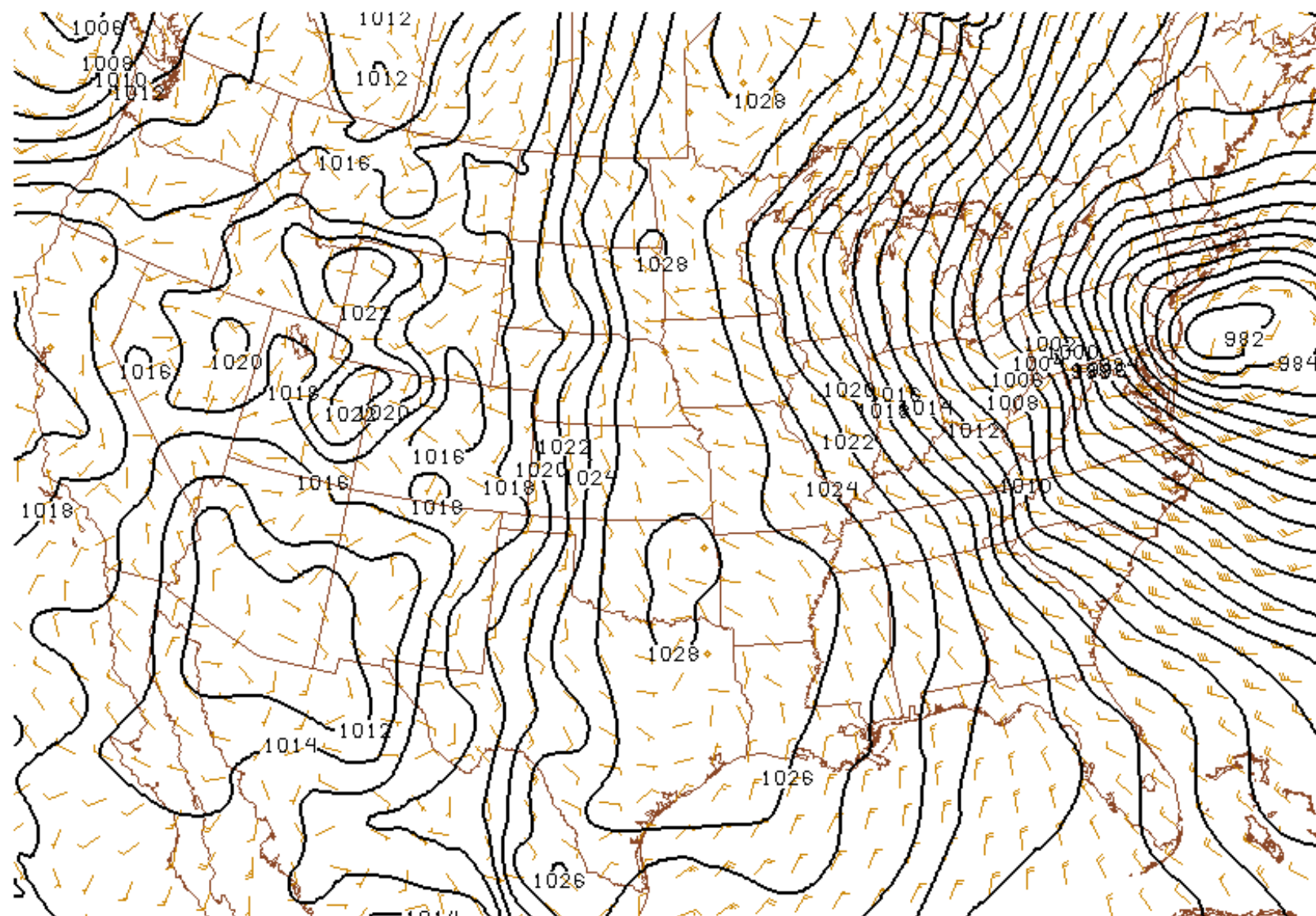
Left click - toggle on/off; Right click - show frame



100210/1200 MSL Pressure and surface wind



Left click - toggle on/off; Right click - show frame





Start

Rock

Set Animation Speed

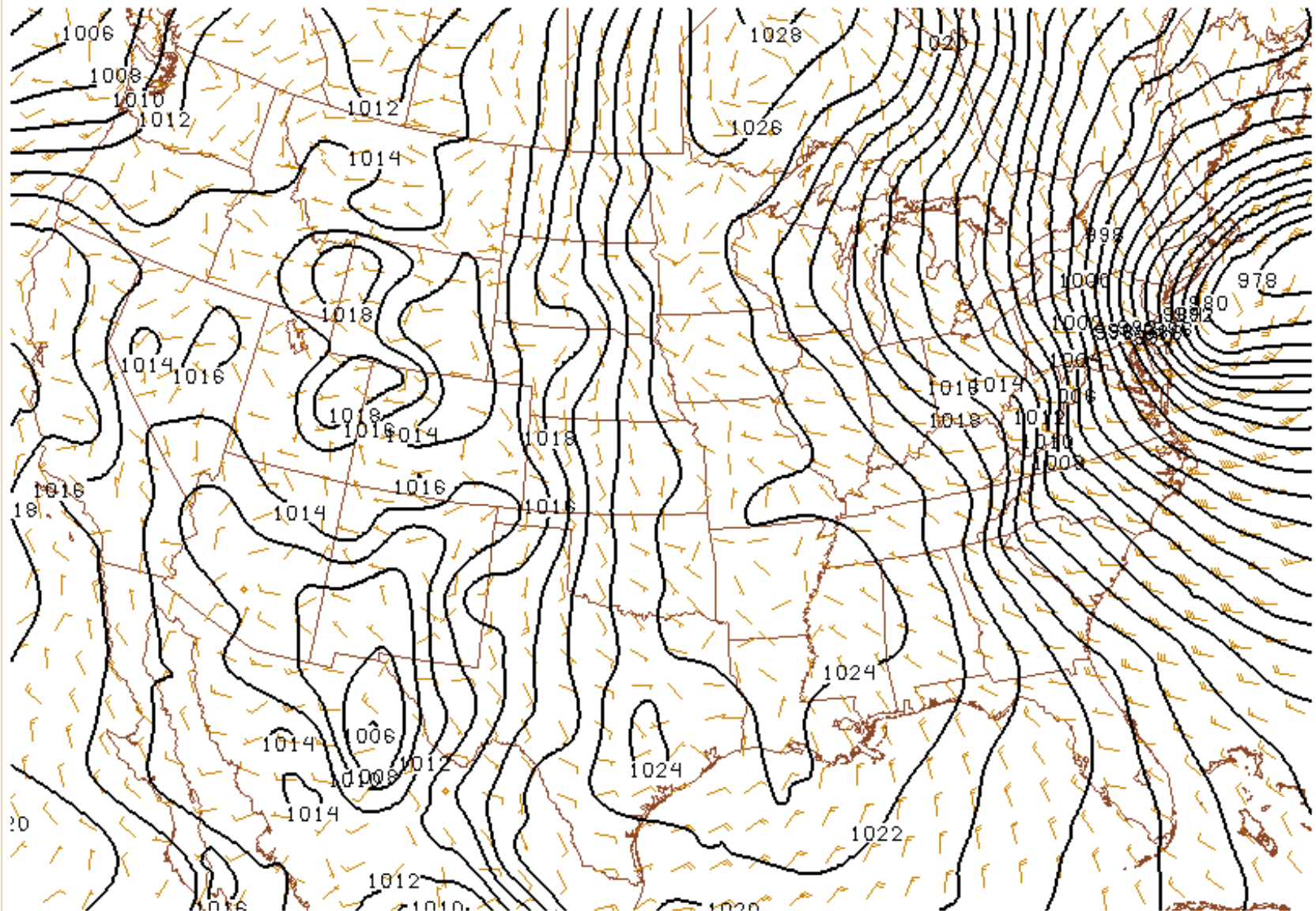


Zoom

Refresh



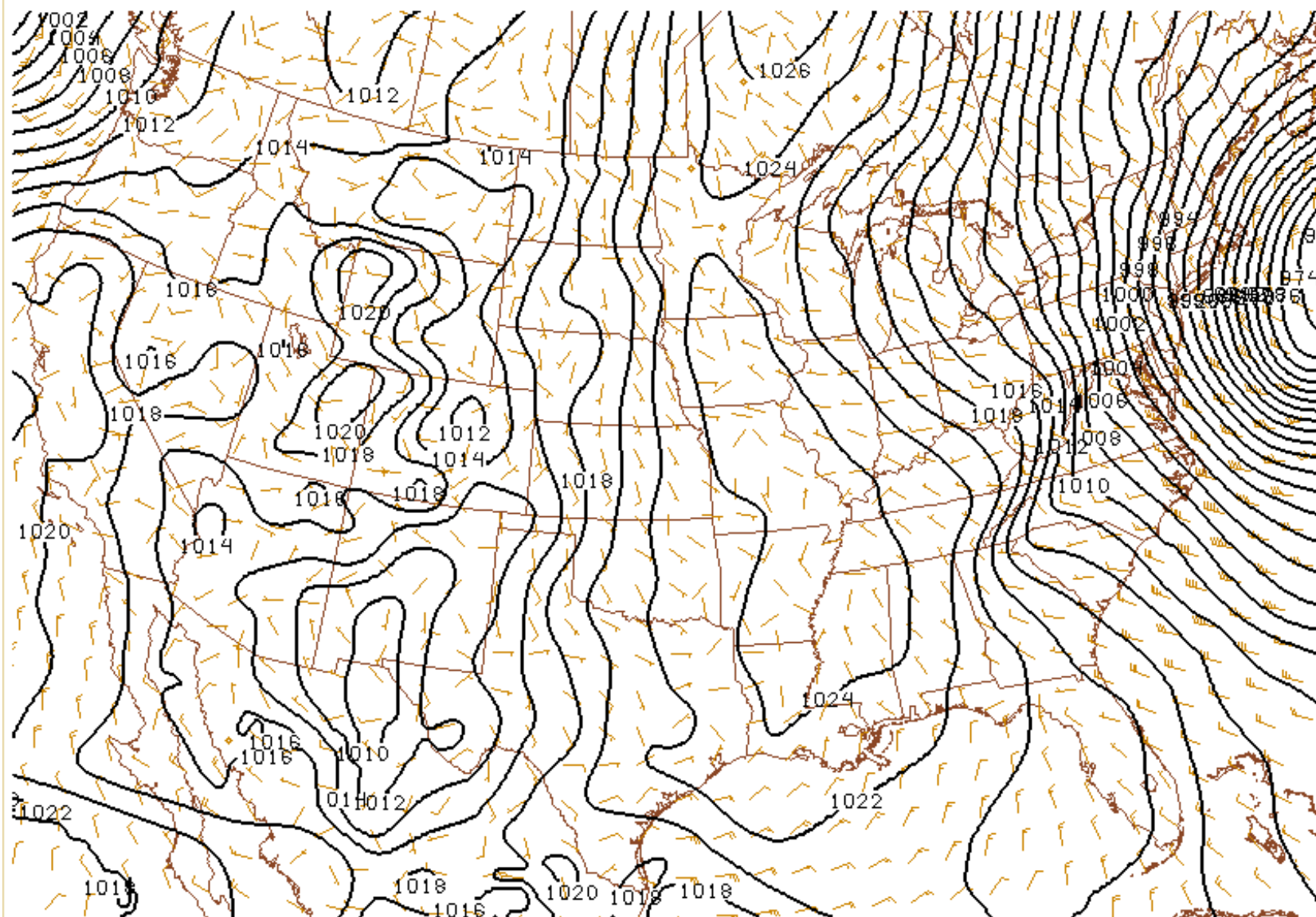
Left click - toggle on/off; Right click - show frame



100211/0000 MSL Pressure and surface wind

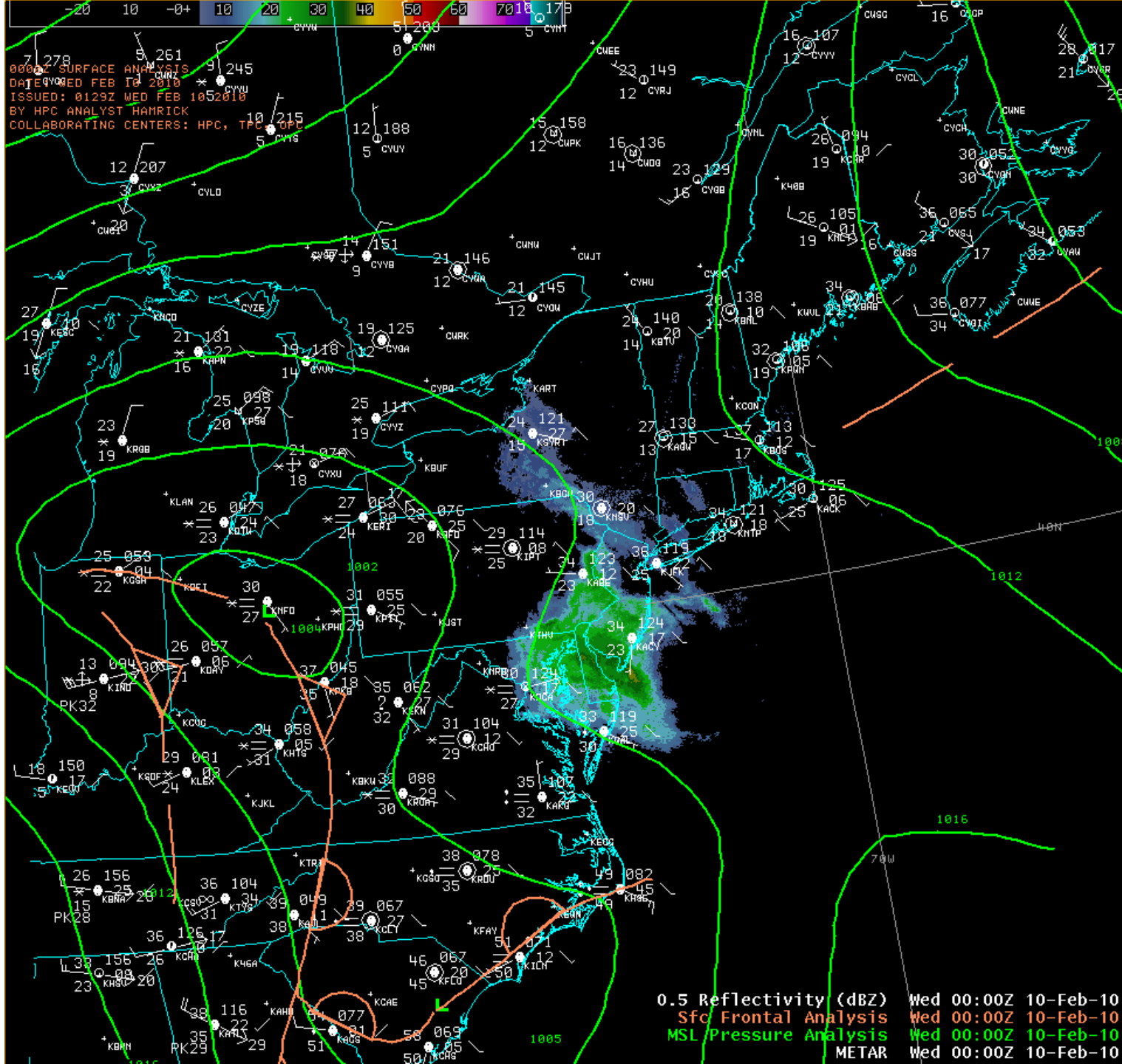


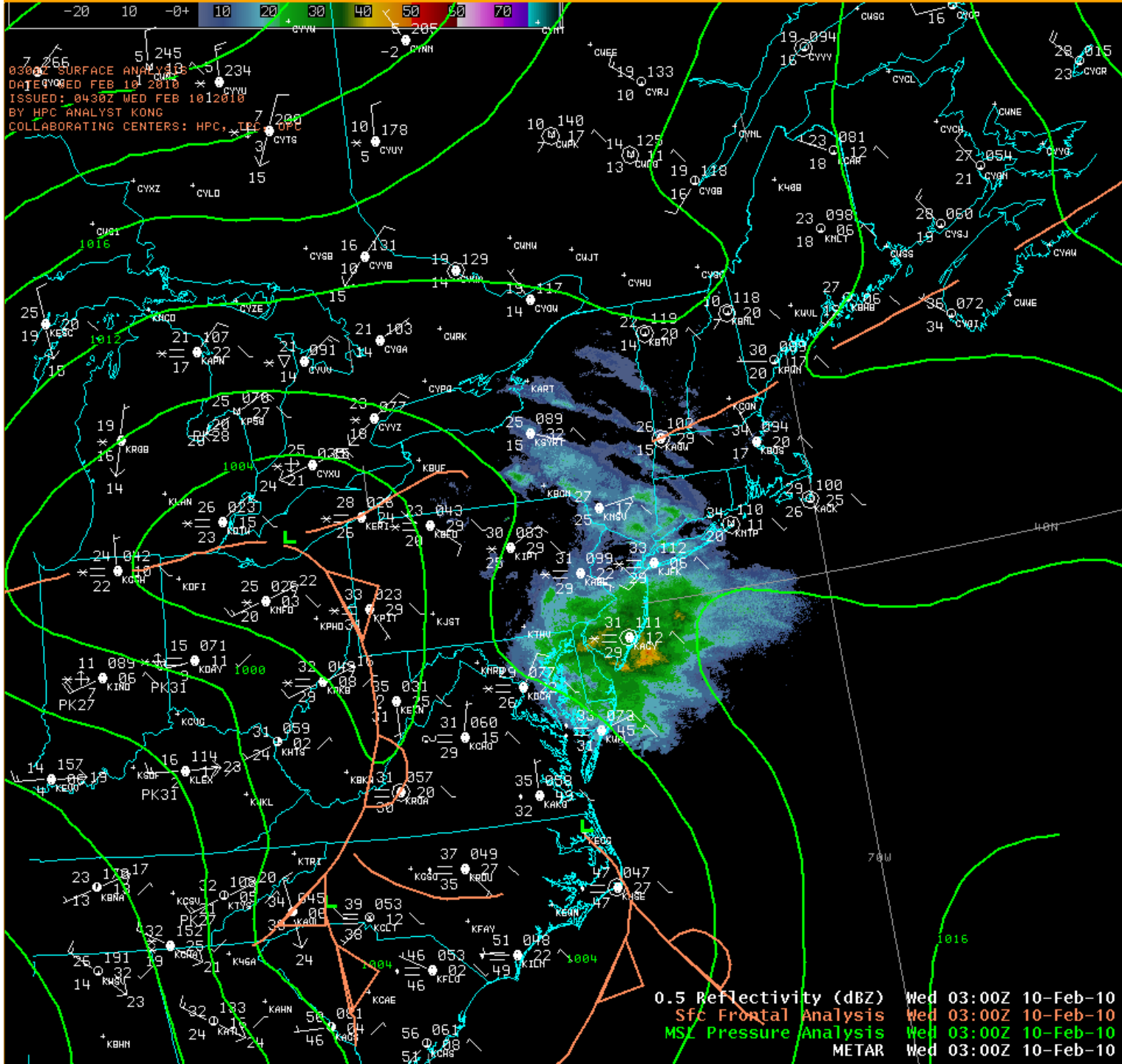
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100211/0600 MSL Pressure and surface wind

Radar

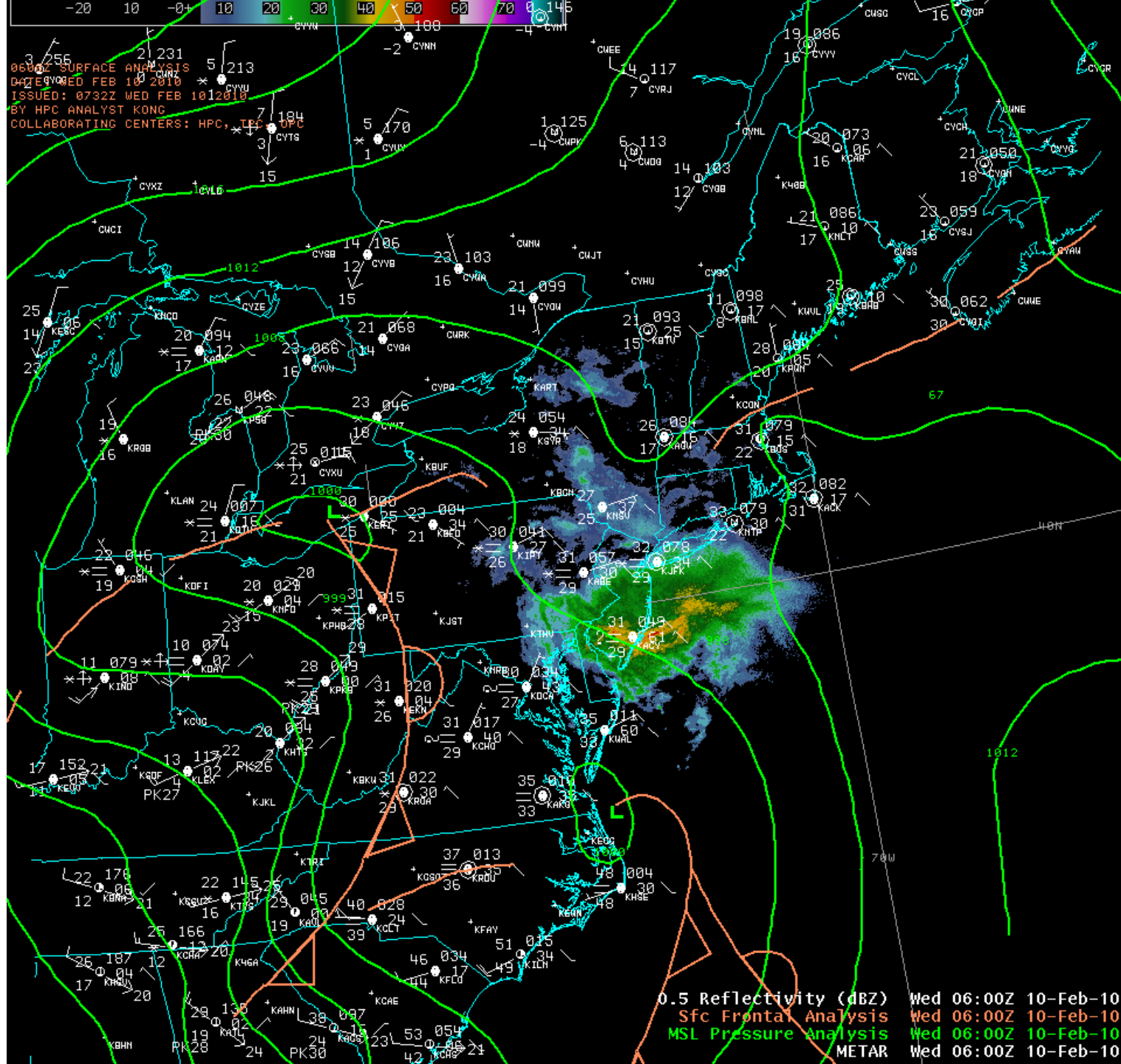


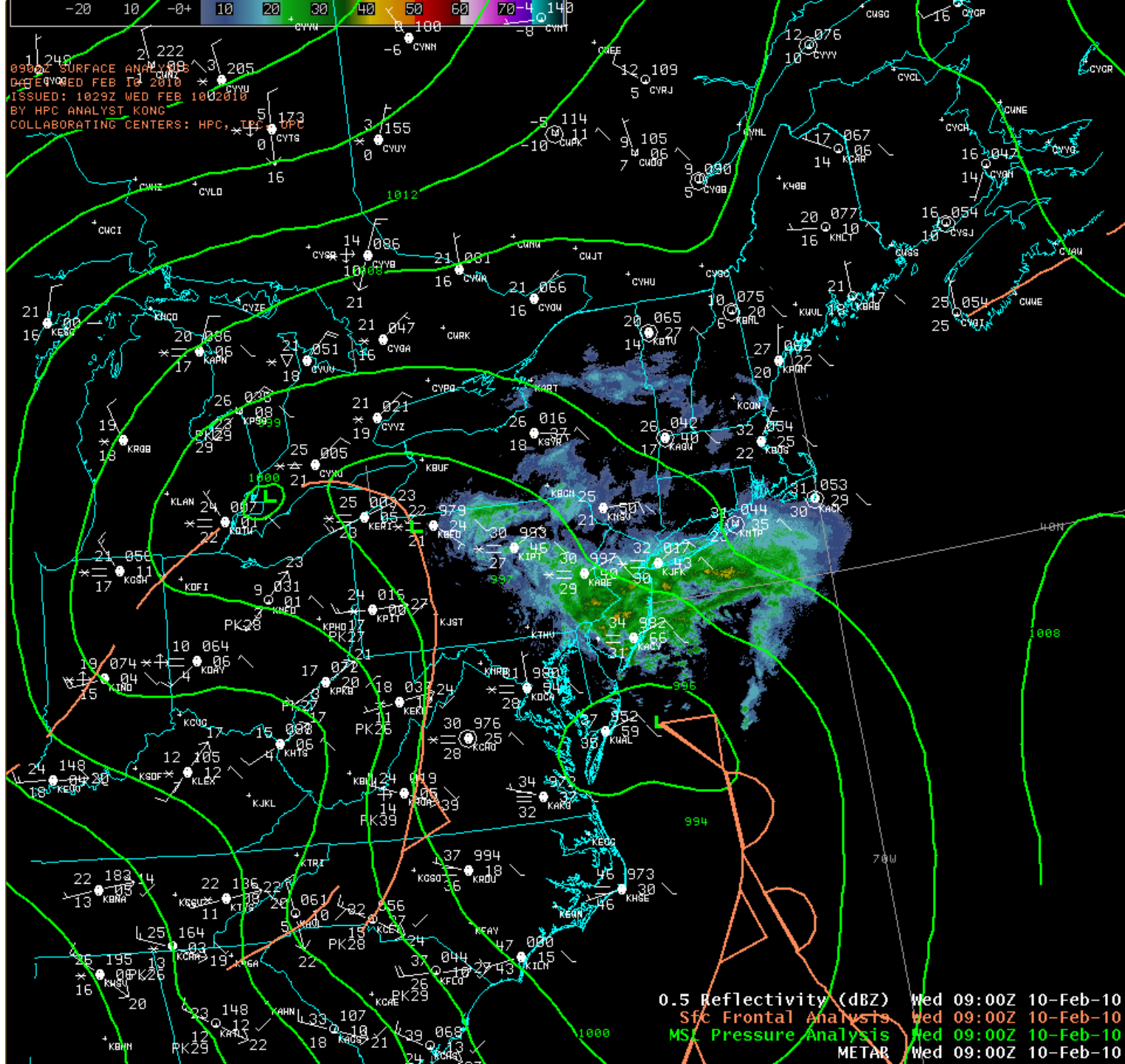


0300Z SURFACE ANALYSIS
DATE: 10 FEB 2010
ISSUED: 0430Z WED FEB 10 2010
BY HPC ANALYST KONG
COLLABORATING CENTERS: HPC, TPC

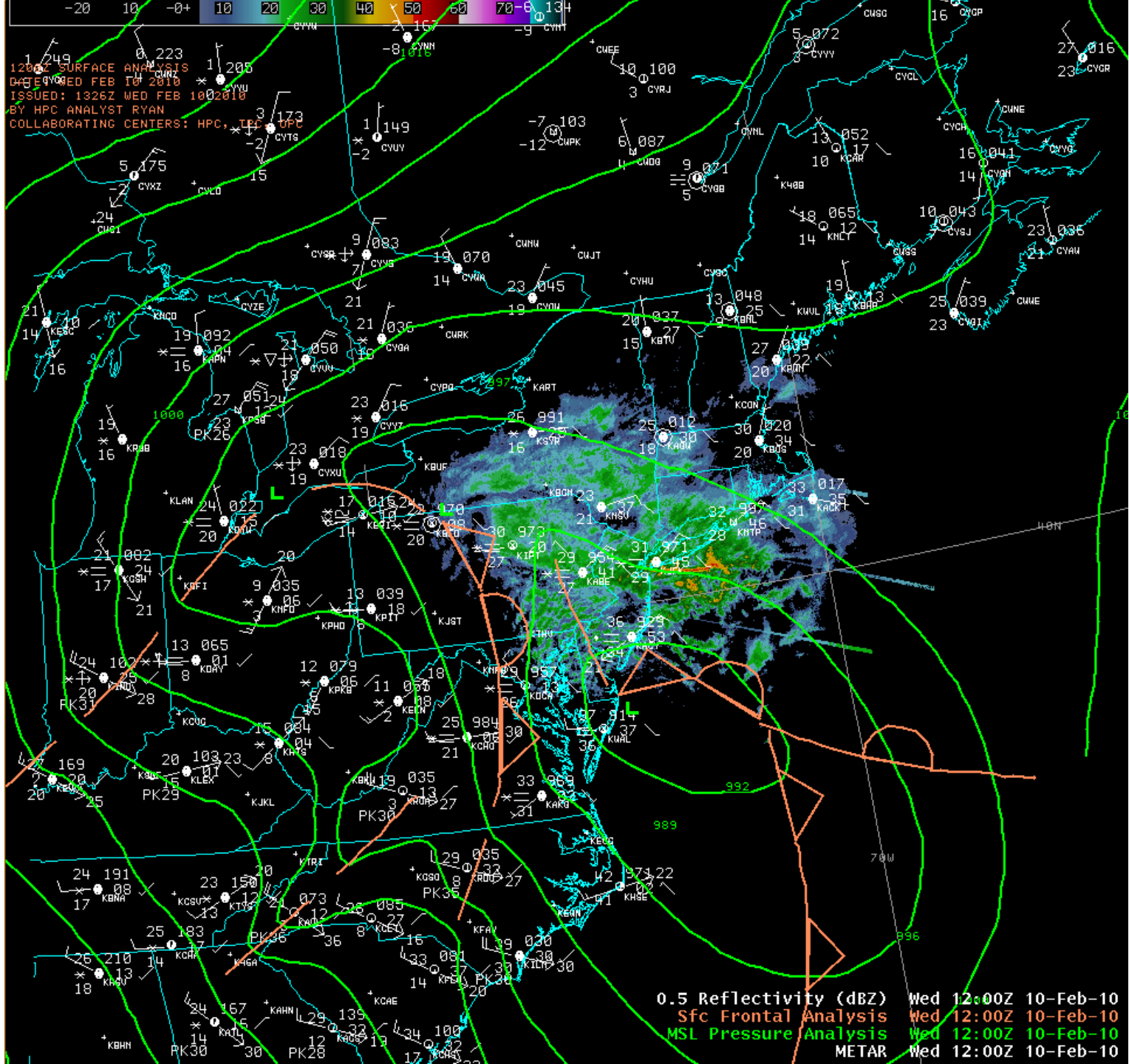
0.5 Reflectivity (dBZ)
Sfc Frontal Analysis
MSL Pressure Analysis
METAR

Wed 03:00Z 10-Feb-10
Wed 03:00Z 10-Feb-10
Wed 03:00Z 10-Feb-10
Wed 03:00Z 10-Feb-10

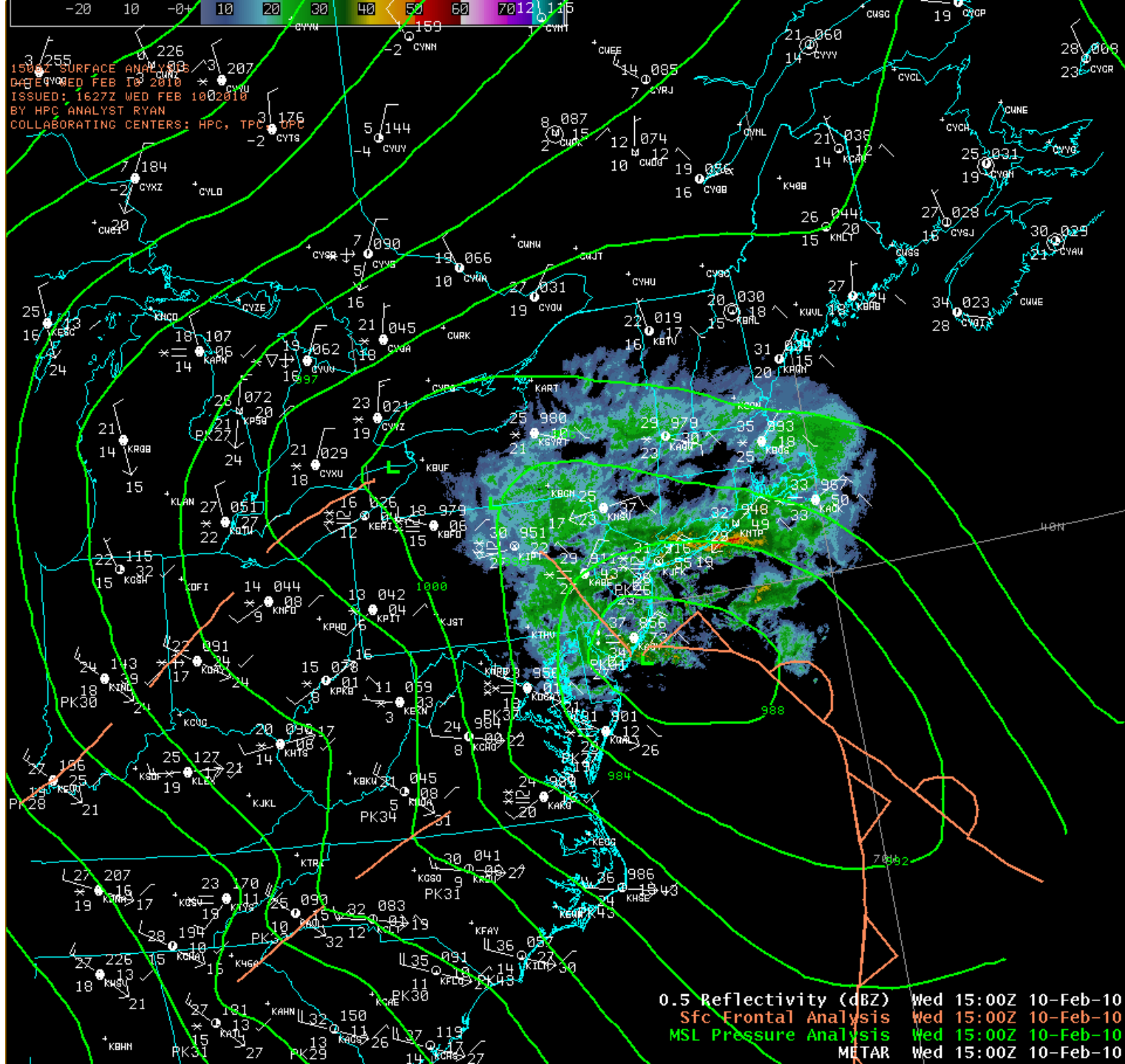


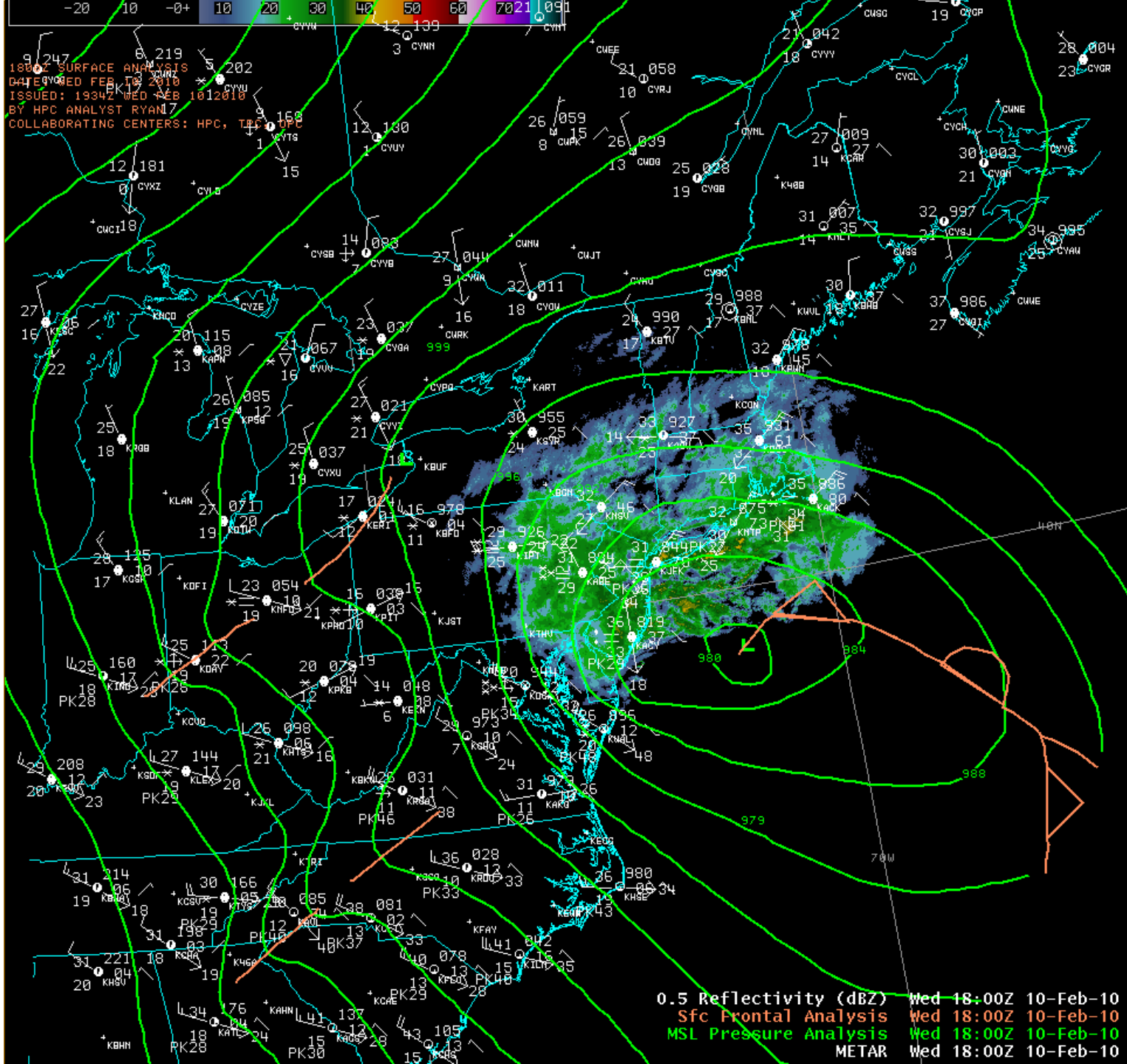


1200Z SURFACE ANALYSIS
BASED FEB 10 2010
ISSUED: 1326Z WED FEB 10 2010
BY HPC ANALYST RYAN
COLLABORATING CENTERS: HPC, TPC, OPC

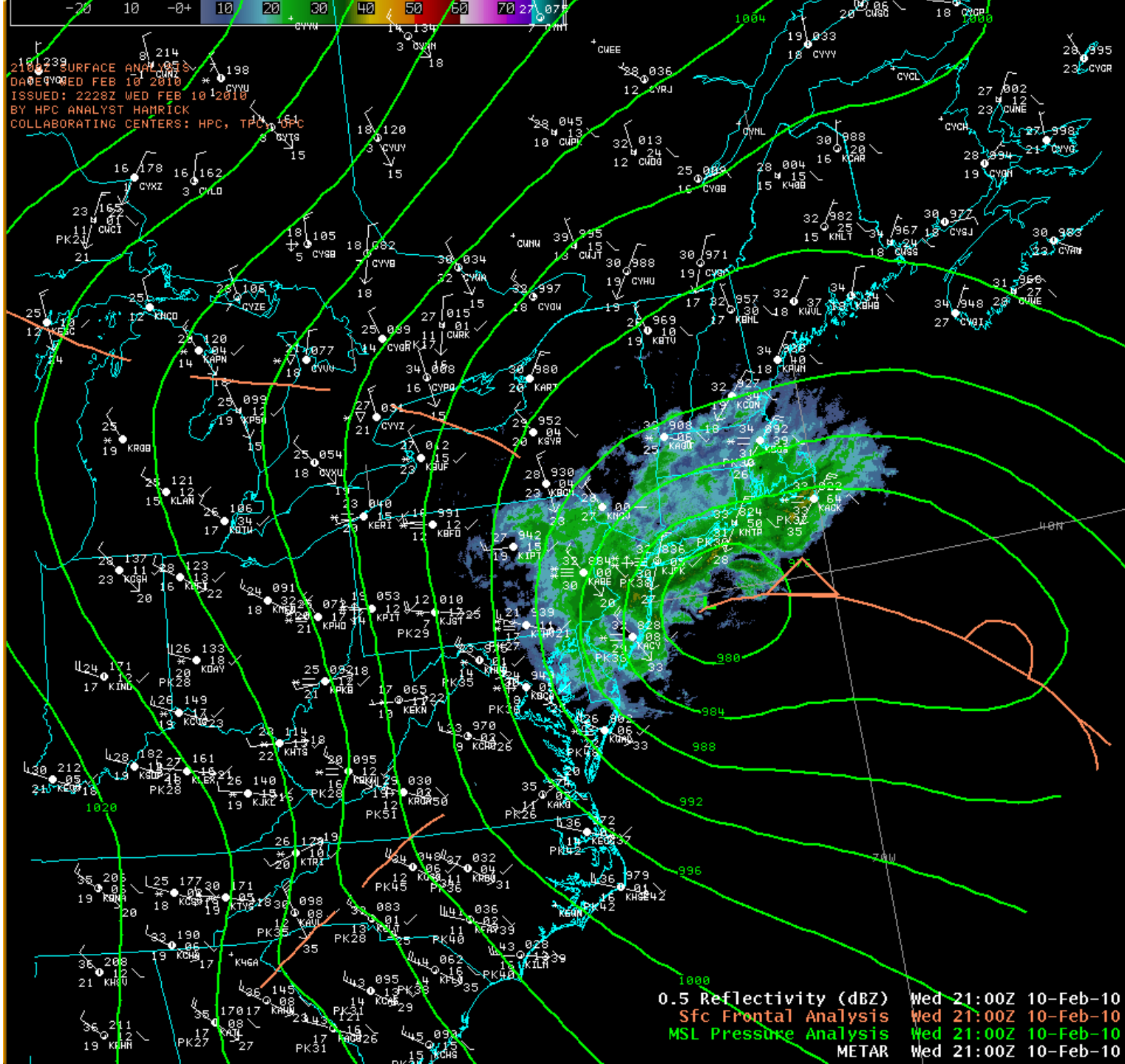


0.5 Reflectivity (dBZ) Wed 12:00Z 10-Feb-10
Sfc Frontal Analysis Wed 12:00Z 10-Feb-10
MSL Pressure Analysis Wed 12:00Z 10-Feb-10
METAR Wed 12:00Z 10-Feb-10



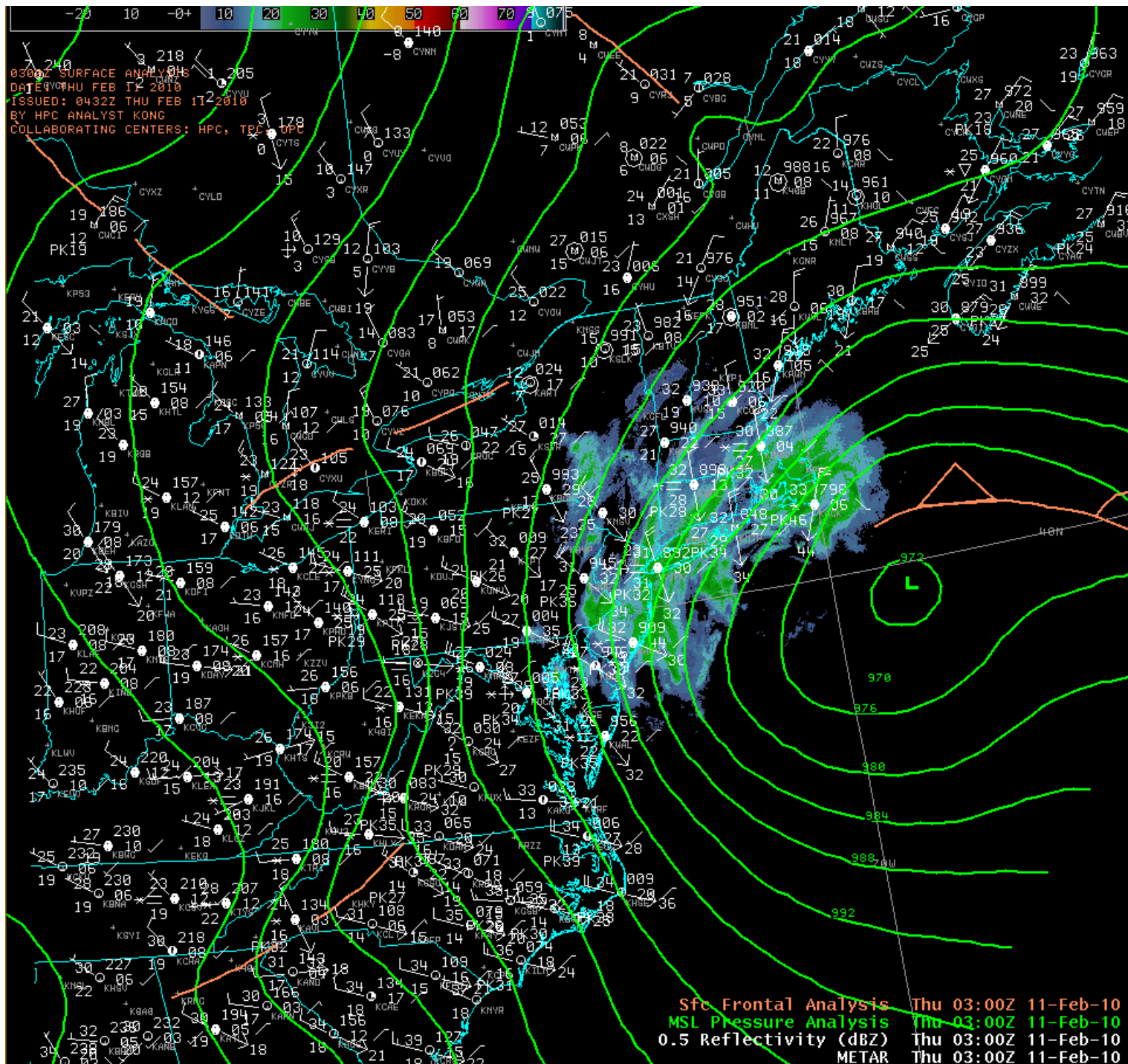


1800Z SURFACE ANALYSIS
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ISSUED: 1934Z WED FEB 10 2010
BY HPC ANALYST RYAN
COLLABORATING CENTERS: HPC, TPC, OPC



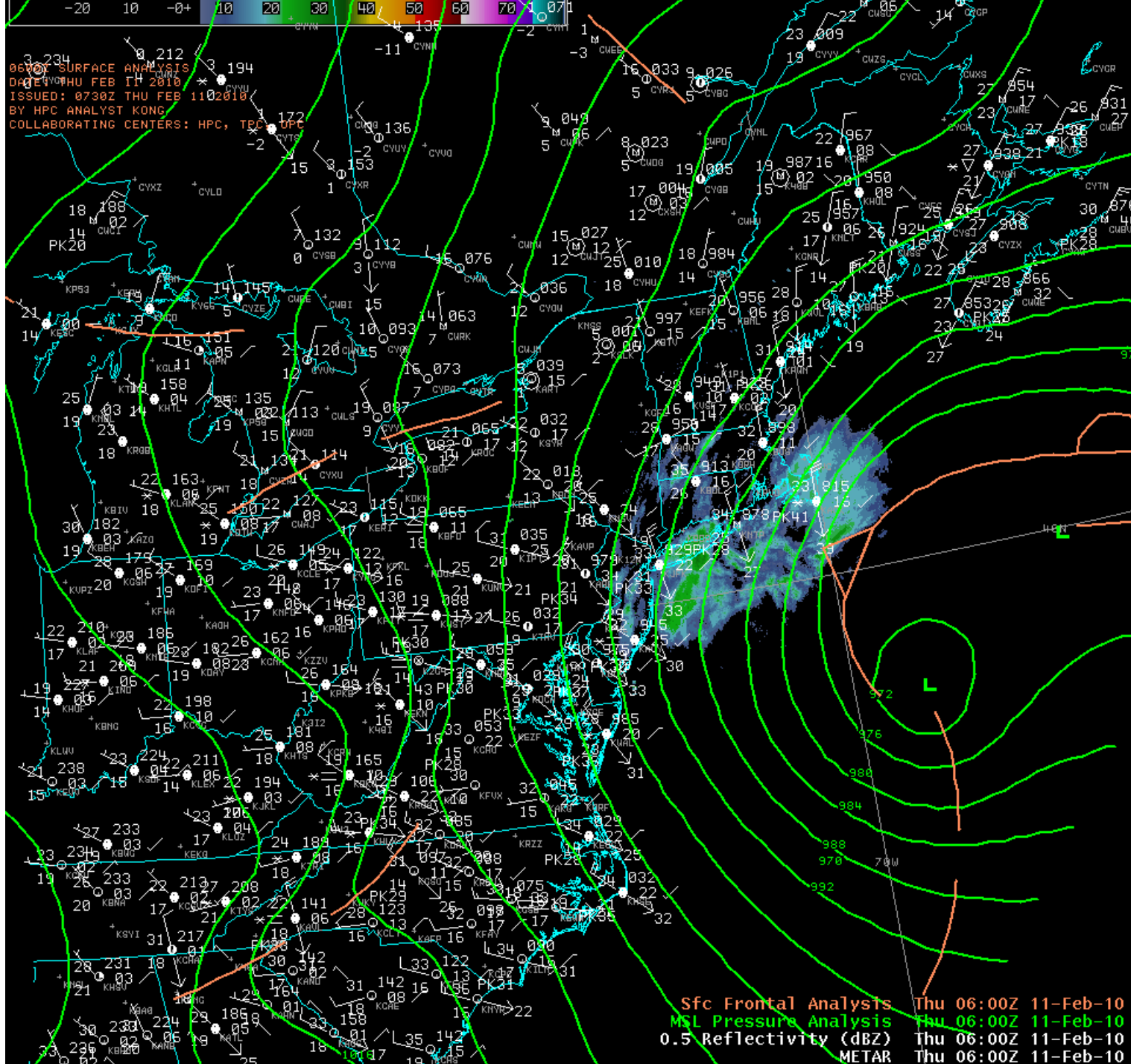
2100Z SURFACE ANALYSIS
DATE: FEB 10 2010
ISSUED: 2228Z WED FEB 10 2010
BY HPC ANALYST HAMRICK
COLLABORATING CENTERS: HPC, TPC, OPC

0.5 Reflectivity (dBZ) Wed 21:00Z 10-Feb-10
Sfc Frontal Analysis Wed 21:00Z 10-Feb-10
MSL Pressure Analysis Wed 21:00Z 10-Feb-10
METAR Wed 21:00Z 10-Feb-10



0300Z SURFACE ANALYSIS
DATE: THU FEB 11 2010
ISSUED: 0432Z THU FEB 11 2010
BY HPC ANALYST KONG
COLLABORATING CENTERS: HPC, TPC, UPR

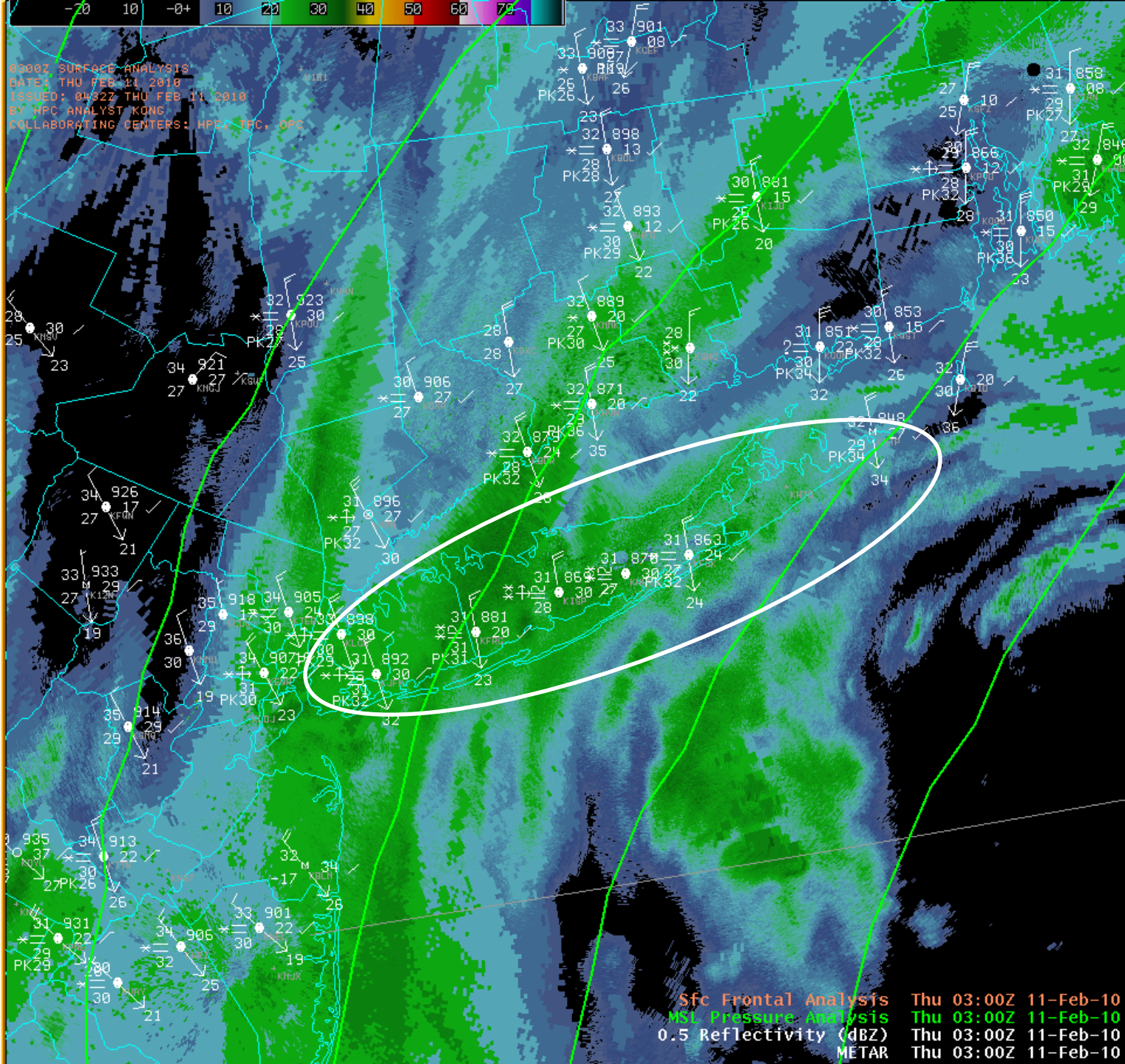
Sfc Frontal Analysis Thu 03:00Z 11-Feb-10
MSL Pressure Analysis Thu 03:00Z 11-Feb-10
0.5 Reflectivity (dBZ) Thu 03:00Z 11-Feb-10
METAR Thu 03:00Z 11-Feb-10



LI Frictional/Orographic Enhancement

Based on Colle/Yuter 2007...both differential frictional and orographic effects likely produced a standing gravity wave over the hills of LI in the cross terrain NW flow. This produced an enhancement of vertical motion in the lee (to the se) of this feature.

0300Z SURFACE ANALYSIS
DATE: THU FEB 11 2010
ISSUED: 0432Z THU FEB 11 2010
BY: HPC ANALYST KONG
COLLABORATING CENTERS: HPC, TPC, OPC



Sfc Frontal Analysis Thu 03:00Z 11-Feb-10
Msl Pressure Analysis Thu 03:00Z 11-Feb-10
0.5 Reflectivity (dBZ) Thu 03:00Z 11-Feb-10
METAR Thu 03:00Z 11-Feb-10

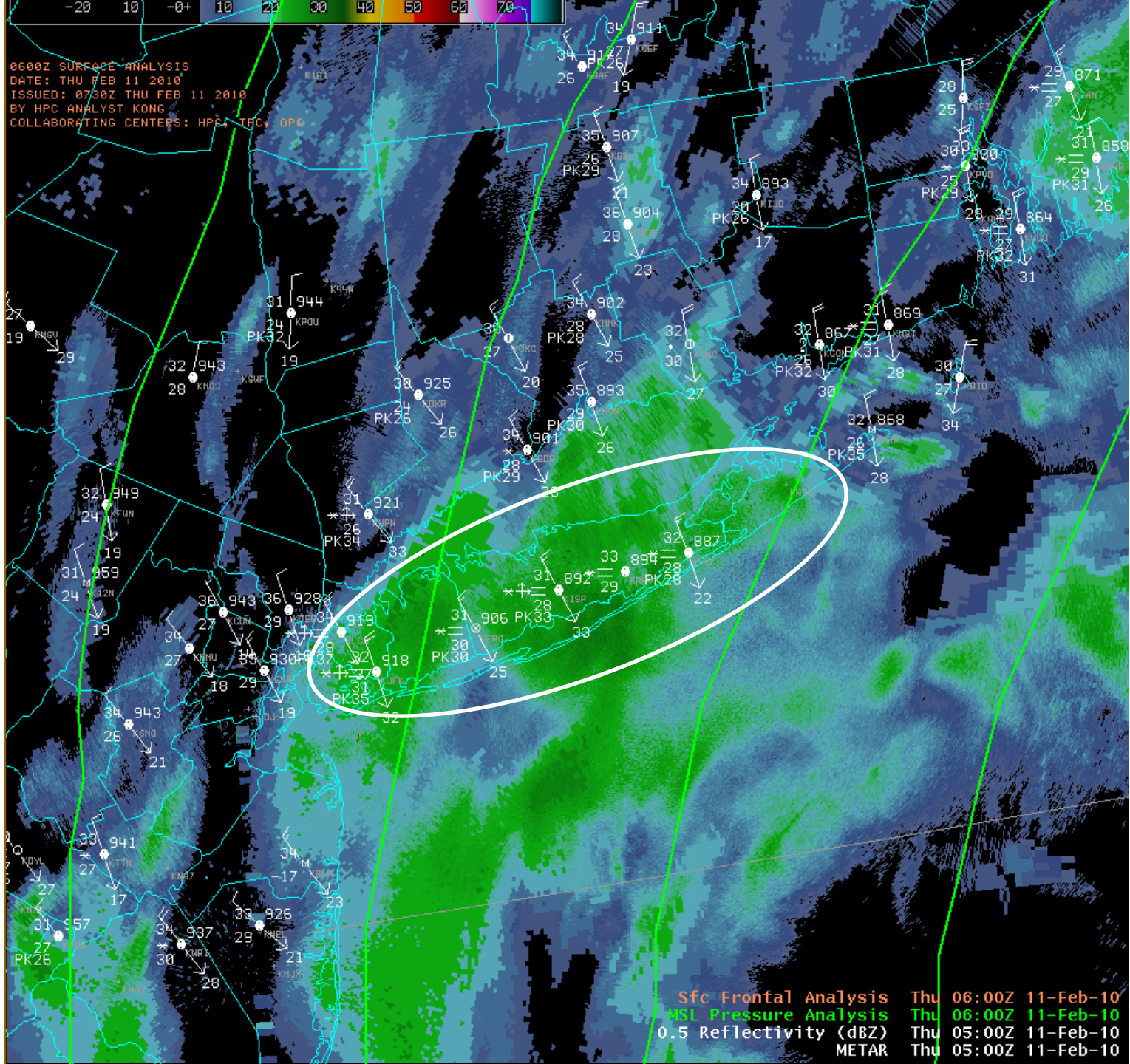
0300Z SURFACE ANALYSIS
DATE: THU FEB 11 2010
ISSUED: 0432Z THU FEB 11 2010
BY HPC ANALYST KONG
COLLABORATING CENTERS: HPC, TPC, OPC

Sfc Frontal Analysis Thu 03:00Z 11-Feb-10
MSL Pressure Analysis Thu 03:00Z 11-Feb-10
0.5 Reflectivity (dBZ) Thu 04:00Z 11-Feb-10
METAR Thu 04:00Z 11-Feb-10

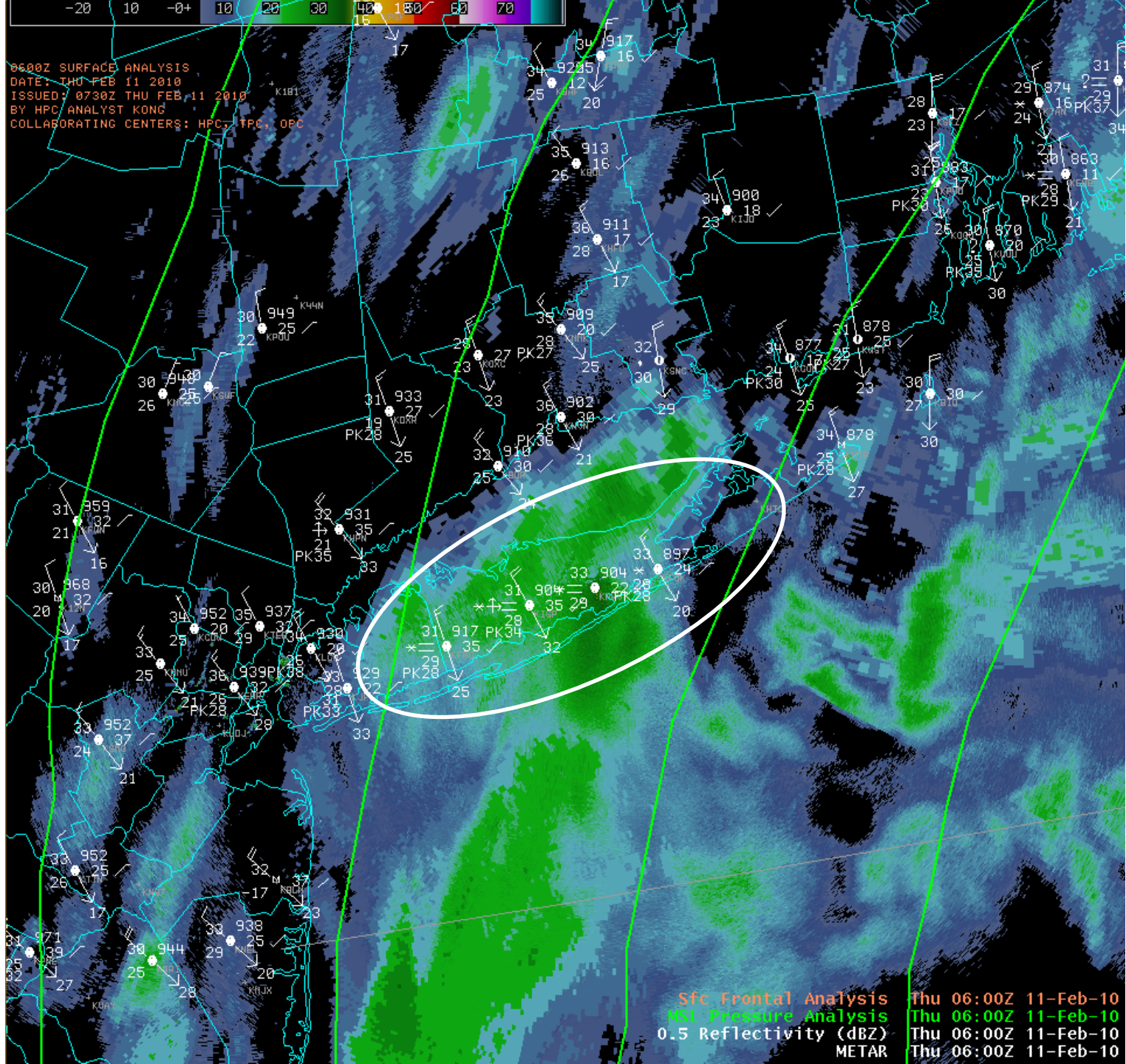
0300Z SURFACE ANALYSIS
 DATE: THU FEB 11 2010
 ISSUED: 0432Z THU FEB 11 2010
 BY: HPC ANALYST KONG
 COLLABORATING CENTERS: HPC, TPC, OPC

Sfc Frontal Analysis Thu 03:00Z 11-Feb-10
 Met Pressure Analysis Thu 03:00Z 11-Feb-10
 0.5 Reflectivity (dBZ) Thu 04:00Z 11-Feb-10
 METAR Thu 04:00Z 11-Feb-10

0600Z SURFACE ANALYSIS
DATE: THU FEB 11 2010
ISSUED: 0730Z THU FEB 11 2010
BY HPC ANALYST KONG
COLLABORATING CENTERS: HPC, TPC, OPC



Sfc Frontal Analysis Thu 06:00Z 11-Feb-10
MSL Pressure Analysis Thu 06:00Z 11-Feb-10
0.5 Reflectivity (dBZ) Thu 05:00Z 11-Feb-10
METAR Thu 05:00Z 11-Feb-10



Wrap-Up